The Harman Kardon Model Citation21

Manual 112A

STEREO PREAMPLIFIER

Technical Manual

The following marks found in the parts list of this manual identify the models as follows.

- (UA) : North America area model
- (G) : General model
- (N) : Japan model

harman/kardon
240 Crossways Park West, Woodbury, N. Y. 11797
1112-3152112A6 P-088706 1500 Printed in Japan

SPECIFICATIONS

	Nominal	Limit
Input Sensitivity/Impedance		
Phono(MM)	2.2mV/47kΩ	
(MC)	125μV/56Ω	
Tuner, CD, Video, Tape	130mV/23kΩ	
Ham and Noise Ratio		
Phono(MM)	78dB	≧ 74dB
(MC)	73dB	≧ 69dB
Tuner, CD, Video, Tape	84dB	≧ 80dB
Signal to Noise Ratio (IHF-A)		
Phono(MM)	84dB	≧ 80dB
(MC)	78dB	≧ 74dB
Tuner, CD, Video, Tape	94dB	≧ 90dB
Channel Separation		
Phono(MM)	54dB	≧ 50dB
(MC)	55dB	≧ 50dB
Tuner, CD, Video, Tape	56dB	≧ 50dB
Overload (20~20kHz)		
Phono(MM)	165mV	≧ 150mV
(MC)	9.2mV	≧ 5mV

	Nominal	Limit
THD at 1V Output (1kHz)		
Tuner, CD, Video, Tape	0.005%	≦ 0.01%
Frequency Response at −3dB	0.25Hz~245kHz	
Subsonic Filter at 20Hz	−3dB ± 1dB	
Tone Control Characteristics		
Bass at 50Hz		
Boost	9.5dB ± 1dB	
Cut	11dB ± 1dB	
Treble at 10kHz		
Boost	9dB ± 1dB	
Cut	9dB ± 1dB	
Dimensions (W × H × D)	17-3/8" × 3-1/2" × 13-5/8" (440 × 90 × 345mm)	
Weight		
Power Supply		
North America area model	AC 120V, 60Hz	
General model	AC220/240V, 50/60Hz	
Japan model	AC100V, 50/60Hz	
Power Consumption	25W	

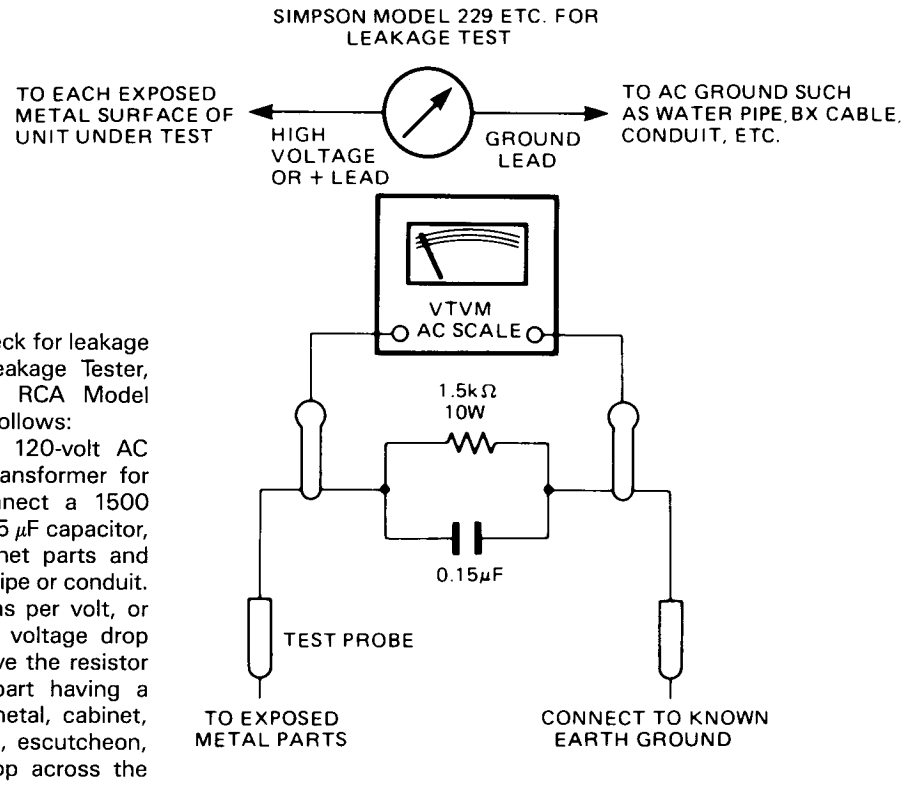
Specifications and components subject to change without notice. Overall performance will be maintained or improved.

This specification is the target of servicing. But, there is a case that the specification is not applicable to the measurement condition and instrument.

LEAKAGE TEST (FOR SERVICE ENGINEERS IN THE U.S.A.)

Before returning the unit to the user, perform the following safety checks:

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the unit.
2. Be sure that any protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc. which were removed for servicing are properly reinstalled.
3. Be sure that no shock hazard exists; check for leakage current using Simpson Model 229 Leakage Tester, standard equipment item No. 21641, RCA Model WT540A or use alternate method as follows:
   Plug the power cord directly into a 120-volt AC receptacle (do not use an Isolation Transformer for this test). Using two clip leads, connect a 1500 Ohm, 10-watt resistor paralleled by a 0.15 μF capacitor, in series with all exposed metal cabinet parts and a known earth ground, such as a water pipe or conduit. Use a VTVM or VOM with 1000 Ohms per volt, or higher sensitivity to measure the AC voltage drop across the resistor. (See Diagram.) Move the resistor connection to each exposed metal part having a return path to the chassis (antenna, metal, cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor. (This test should be performed with the power switch in both the On and Off positions.)
   A reading of 0.35 volt RMS or more is excessive and indicates a potential shock hazard which must be corrected before returning the unit to the owner.



DISASSEMBLY PROCEDURES (REFER TO PAGES 4, 5, 6, 7 AND 15)

1 CABINET TOP REMOVAL

Remove 6 screws (A) and then remove the Cabinet Top (131).

2 FRONT PANEL ASS'Y (AA) REMOVAL

1. Remove the Cabinet Top (131), referring to the previous step 1.
2. Remove 5 screws (B) and then remove the Front Panel Ass'y (AA).

3 MAIN P.C.BOARD (PCB-1) REMOVAL

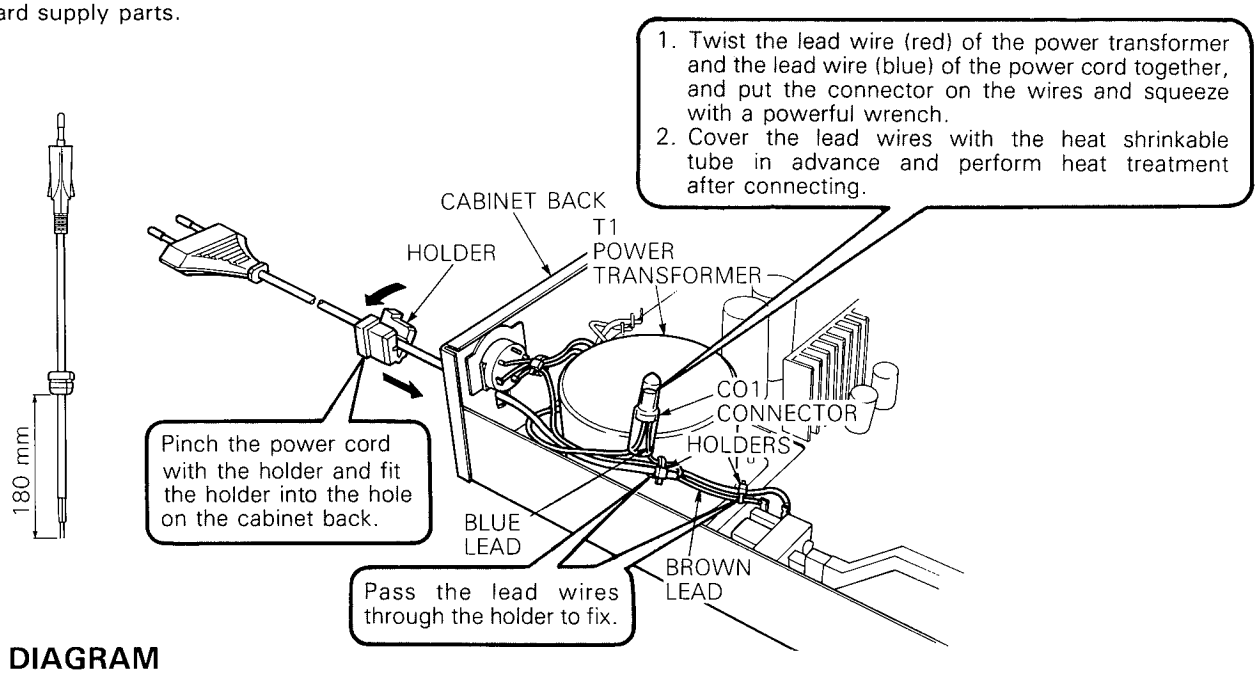
1. Remove the Front Panel Ass'y (AA), referring to the previous step 2.
2. Open the lid of connectors (CN107, CN108, CN109 and CN110) on the Tape Switches P.C.Board (PCB-2) and then disconnect the lead wires.
3. Remove 4 screws (C) and then remove the Tape Switches P.C.Board (PCB-2).
4. Open the lid of connector (CN112) on the EQ Amp. P.C.Board (PCB-4) and then disconnect the lead wires.
5. Pull off Volume, Bass, Treble and Balance kobs (142 and 147).
6. Remove 15 screws (D) and 4 hexagon nut (E) and then remove the Front Chassis (161) with the Indicators P.C.Board (PCB-3).
7. Open the lid of connectors (CN101, CN102, CN103, CN104 and CN105) on the EQ Amp. P.C.Board (PCB-4) and then disconnect the lead wires.
8. Remove 4 screws (F) and then remove the Main P.C. Board (PCB-1).
   If necessary, unsolder the lead wires connected to the PCB-1.

4 EQ AMP. P.C.BOARD (PCB-4) REMOVAL

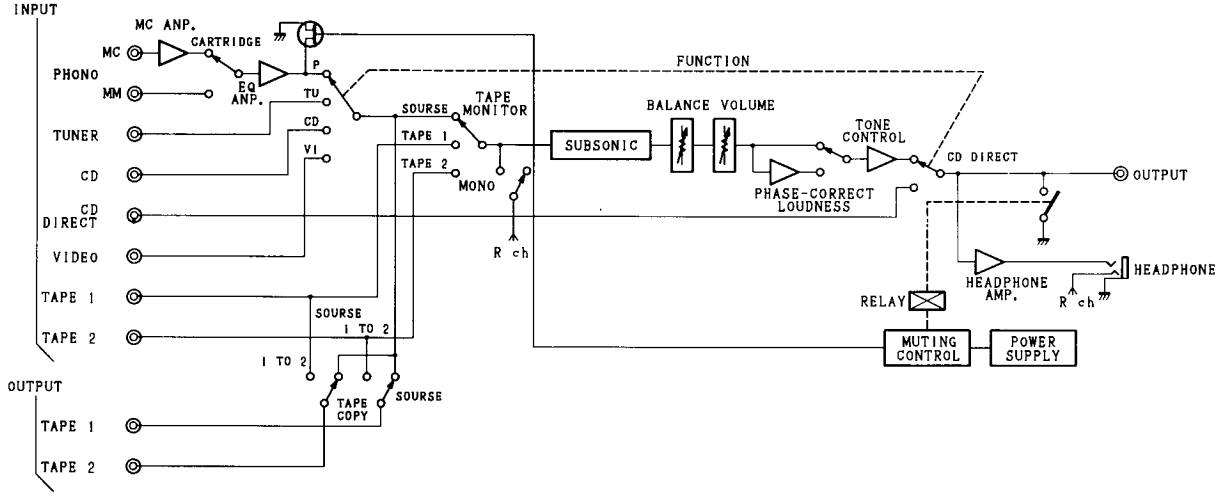
1. Remove the Front Chassis (161), referring to the previous step 3.
2. Open the lid of connectors (CN101, CN102, CN103, CN104 and CN105) on the EQ Amp. P.C.Board (PCB-4) and then disconnect the lead wires.
3. Remove 6 screws (G) and then remove the EQ Amp. P.C.Board (PCB-4).

POWER CORD REPLACEMENT (FOR SERVICE ENGINEERS OTHER THAN NORTH AMERICA)

In order to prevent fire or shock hazard when replacing the power cord, follow the procedure below to replace the part with the standard supply parts.

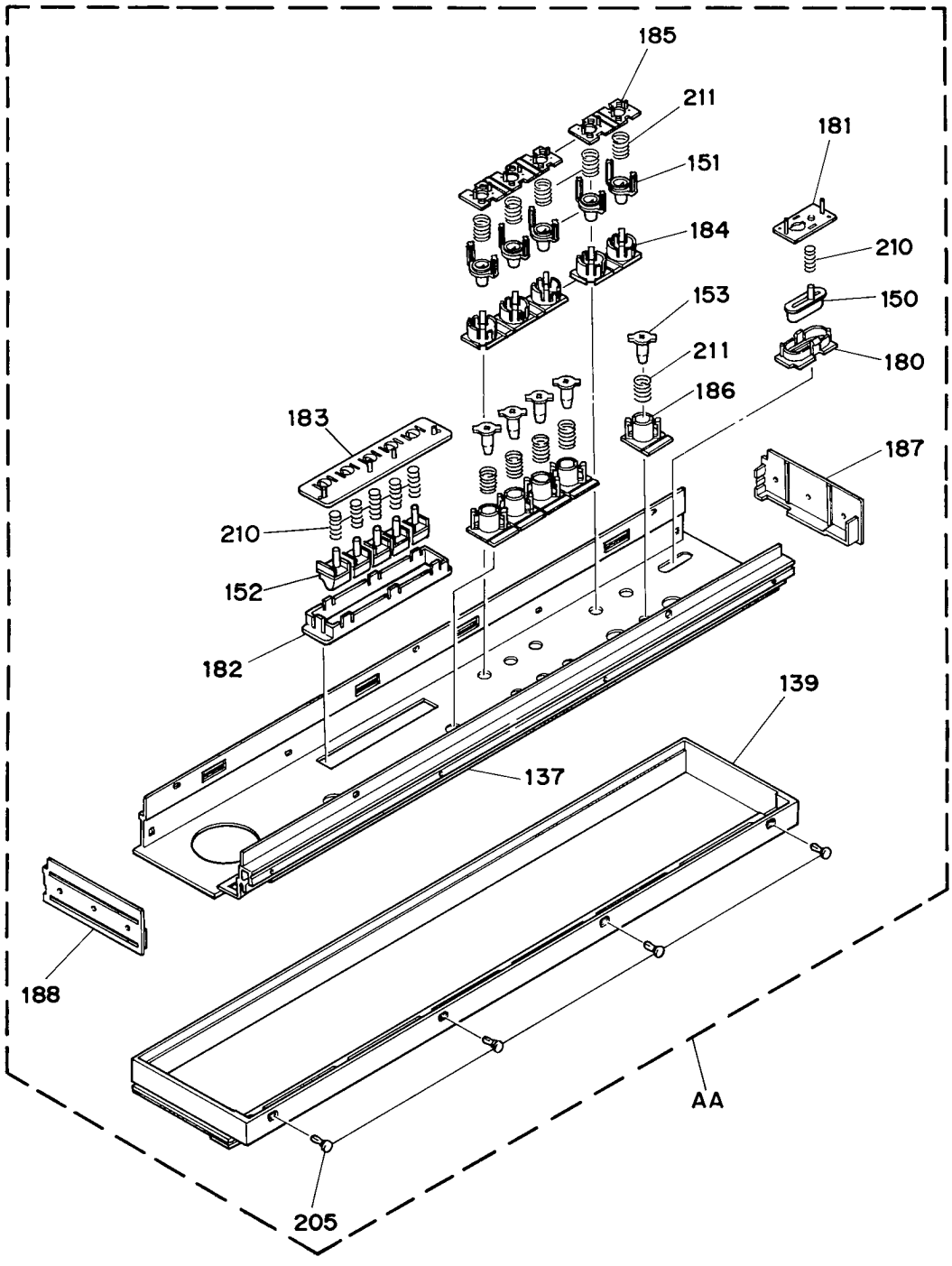

1. Twist the lead wire (red) of the power transformer and the lead wire (blue) of the power cord together, and put the connector on the wires and squeeze with a powerful wrench.
2. Cover the lead wires with the heat shrinkable tube in advance and perform heat treatment after connecting.
CABINET BACK
HOLDER
T1
POWER
TRANSFORMER
CO1
CONNECTOR
HOLDERS
180 mm
Pinch the power cord with the holder and fit the holder into the hole on the cabinet back.
BLUE
LEAD
BROWN
LEAD
Pass the lead wires through the holder to fix.

BLOCK DIAGRAM



GENERAL UNIT

EXPLODED VIEW (FRONT PANEL ASS'Y)

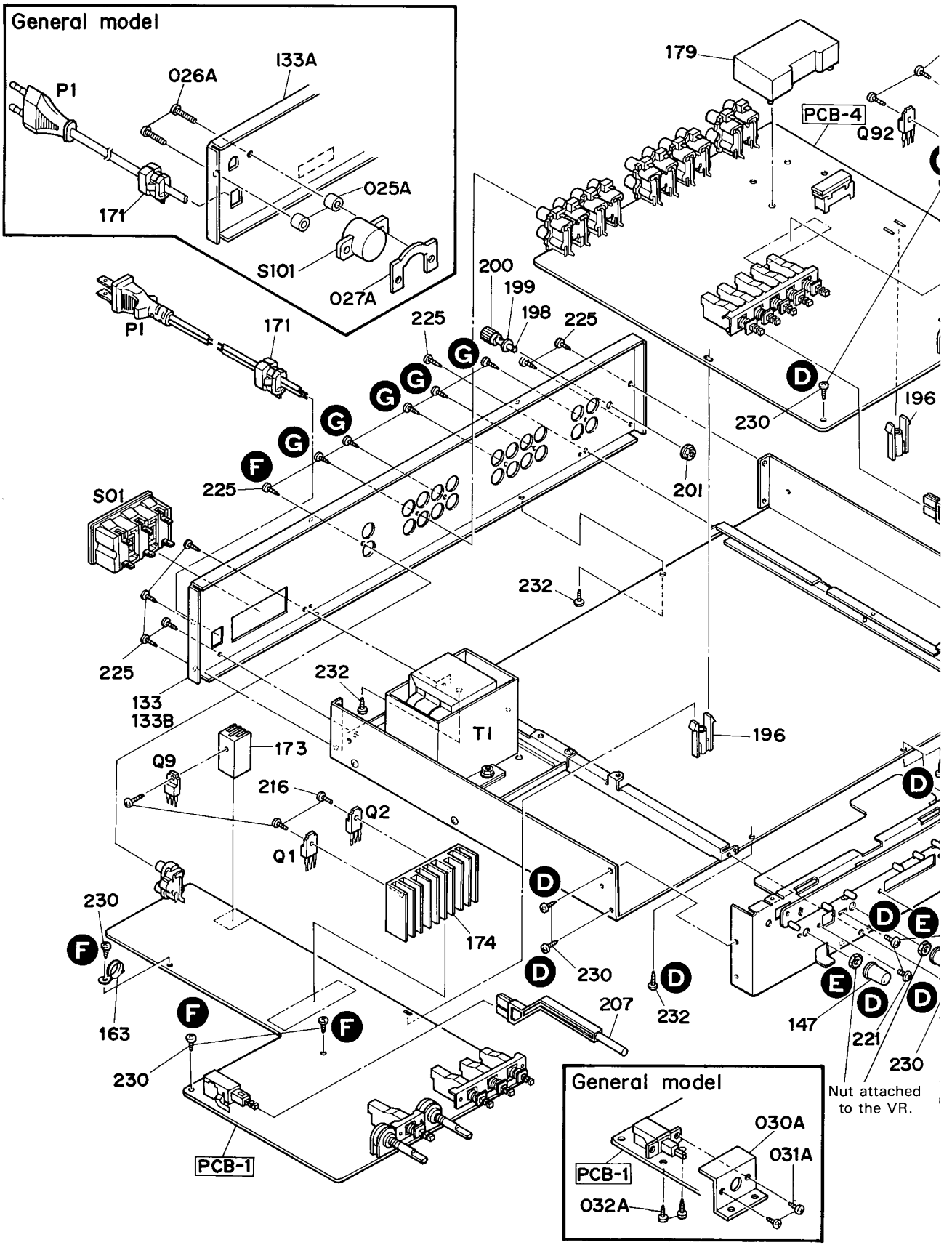


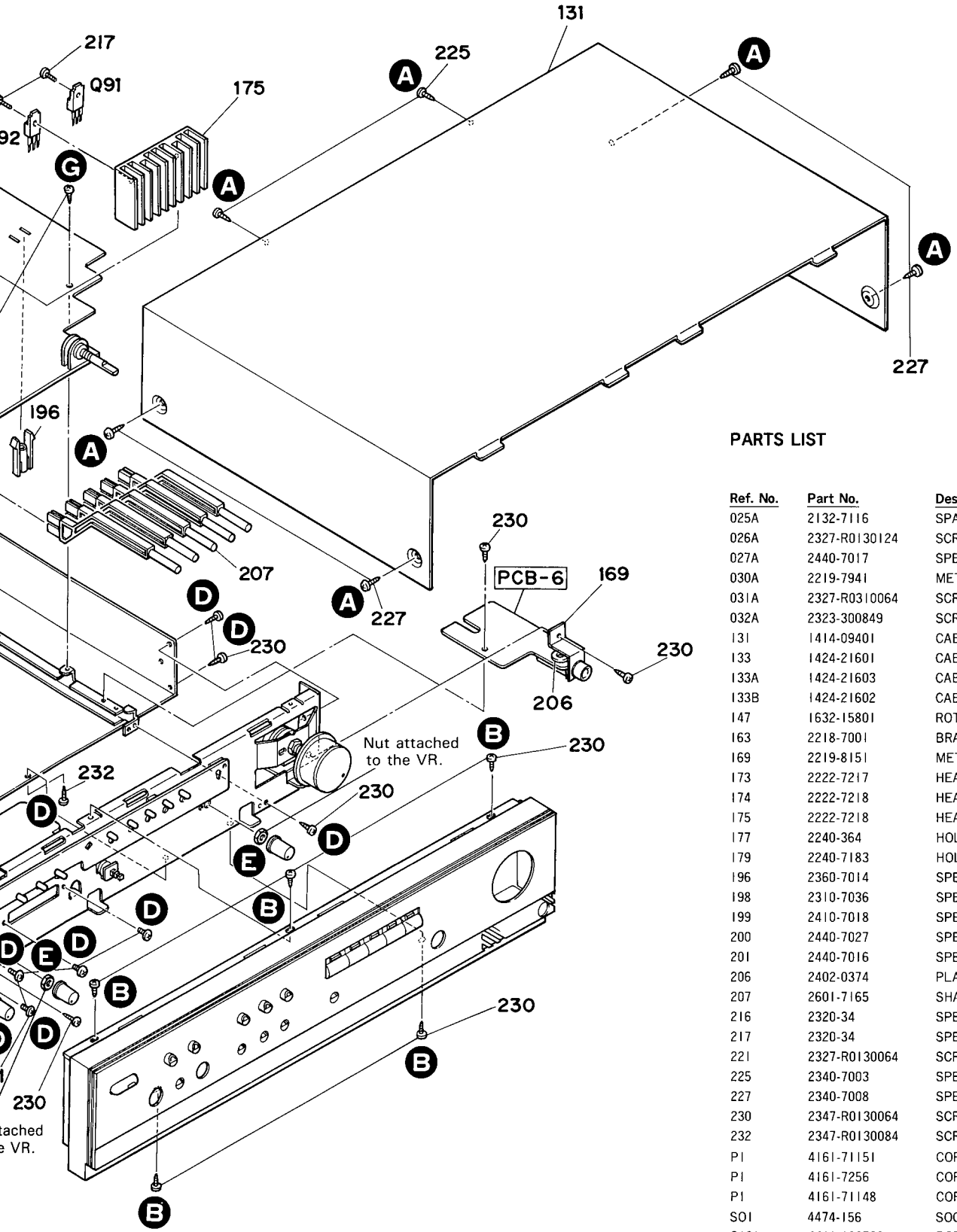
PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
AA	A443-H202A	FRONT PANEL ASS'Y	183	2240-7301	HOLDER, FUNCTION
137	1443-10701	PANEL	184	2240-7302	HOLDER
139	1562-05501	FRAME	185	2240-7303	HOLDER
150	1662-30401	PUSH BUTTON	186	2240-7304	HOLDER
151	1662-30701	PUSH BUTTON	187	2240-7305	HOLDER, L SIDE
152	1662-30801	PUSH BUTTON	188	2240-7306	HOLDER, R SIDE
153	1662-30901	PUSH BUTTON	205	2459-3005111	PLASTIC RIVET, FRAME
180	2240-7290	HOLDER, POWER	210	2651-2101727	SPRING
181	2240-7291	HOLDER, POWER	211	2651-210189	SPRING
182	2240-7300	HOLDER, FUNCTION			

GENERAL UNIT

EXPLODED VIEW



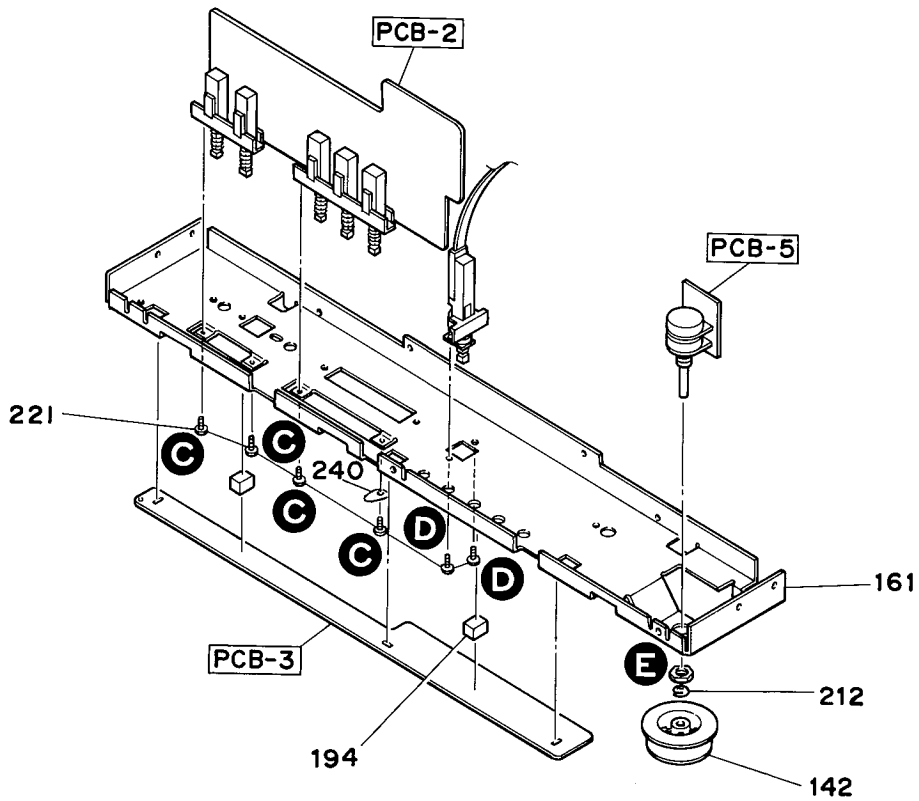


PARTS LIST

Ref. No.	Part No.	Description
025A	2132-7116	SPACER, VOLT SELECT G
026A	2327-R0130124	SCREW, VOLT SELECT G
027A	2440-7017	SPECIAL NUT, VOLT SELECT G
030A	2219-7941	METAL FITTG, POWER SW G
031A	2327-R0310064	SCREW, POWER SW G
032A	2323-300849	SCREW, POWER SW G
131	1414-09401	CABINET TOP
133	1424-21601	CABI BACK, REAR UA
133A	1424-21603	CABI BACK, REAR G
133B	1424-21602	CABI BACK, REAR N
147	1632-15801	ROTARY KNOB
163	2218-7001	BRACKET, WIRING
169	2219-8151	METAL FITTG, HEADPHONE
173	2222-7217	HEAT SINK
174	2222-7218	HEAT SINK
175	2222-7218	HEAT SINK
177	2240-364	HOLDER, AC CORD
179	2240-7183	HOLDER, MC
196	2360-7014	SPECIAL BOSS
198	2310-7036	SPECIAL SCREW, GND
199	2410-7018	SPECIAL WASHER, GND
200	2440-7027	SPECIAL NUT, GND
201	2440-7016	SPECIAL NUT, GND
206	2402-0374	PLASTIC WASHER, HEADPHONE
207	2601-7165	SHAFT
216	2320-34	SPECIAL SCREW, Tr
217	2320-34	SPECIAL SCREW, Tr
221	2327-R0130064	SCREW, S5/S6
225	2340-7003	SPECIAL SCREW
227	2340-7008	SPECIAL SCREW, TOP COVER
230	2347-R0130064	SCREW
232	2347-R0130084	SCREW, CABI BACK
P1	4161-71151	CORD W/PLUG, AC CORD UA
P1	4161-7256	CORD W/PLUG, AC CORD G
P1	4161-71148	CORD W/PLUG, AC CORD N
SO1	4474-156	SOCKET, AC OUTLET UA N
S101	4411-102729	ROTARY SWITCH, VOLT SELECT G
T1	5584-701554	XFORMER, POWER UA
T1	5584-702453	XFORMER, POWER G
T1	5584-703453	XFORMER, POWER N
Q1	5612-1015(O)or(Y)	XISTOR, PNP A
Q2	5614-1406(O)	XISTOR, NPN A
Q9	5612-1015(O)or(Y)	XISTOR, PNP A
Q91	5612-1015(O)or(Y)	XISTOR, PNP A
Q92	5614-1406(O)or(Y)	XISTOR, NPN A

GENERAL UNIT

EXPLODED VIEW (FRONT CHASSIS)

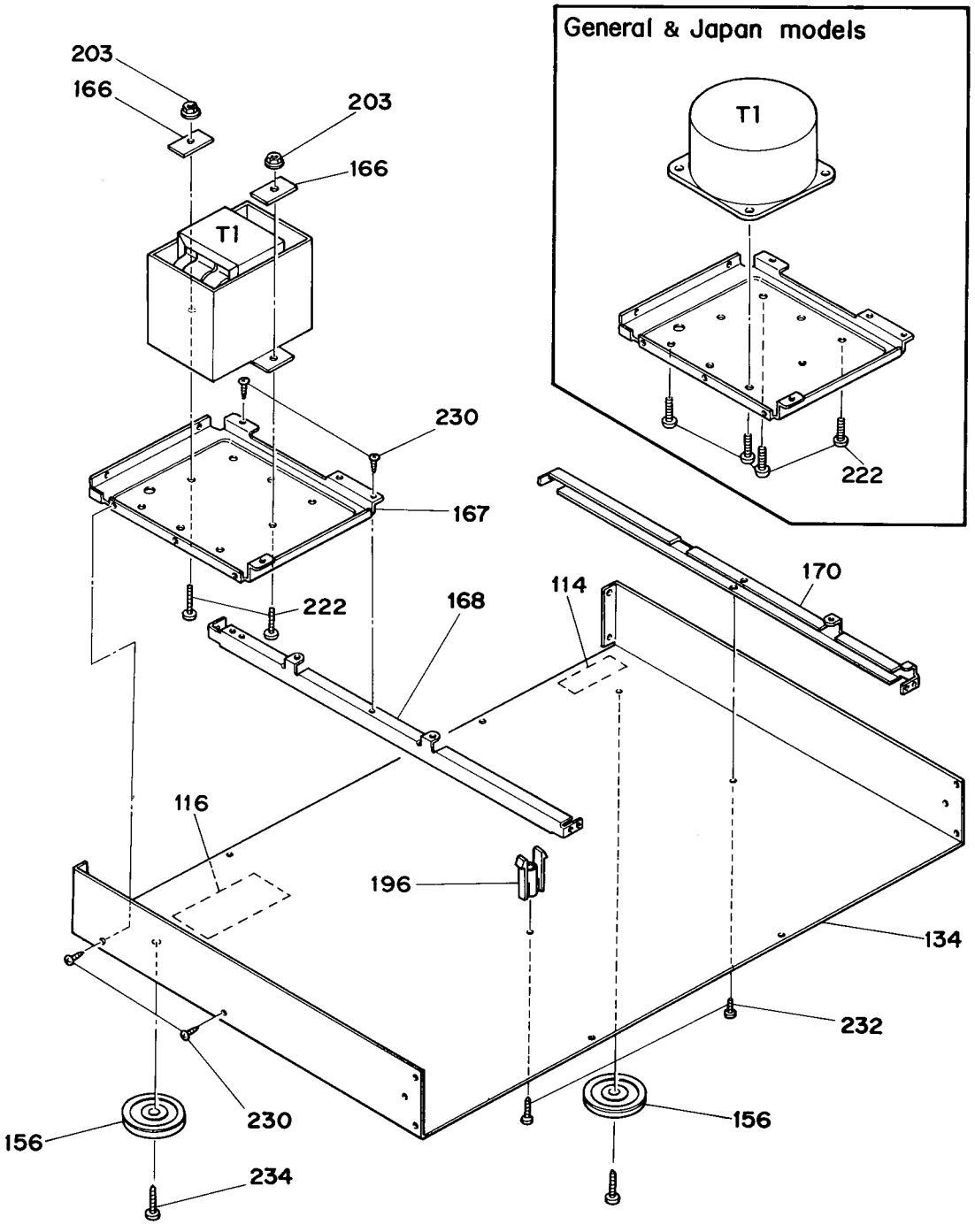


PARTS LIST

Ref. No.	Part No.	Description
142	1630-03501	ROTARY KNOB
161	2211-7288	CHASSIS
194	2112-11755	SPONGE, PCB-3
212	2651-110518	SPRING, VOLUME
221	2327-R0130064	SCREW, PCB-2/S7
240	4211-5005	LUG, GND

GENERAL UNIT

EXPLODED VIEW (CABINET BOTTOM)



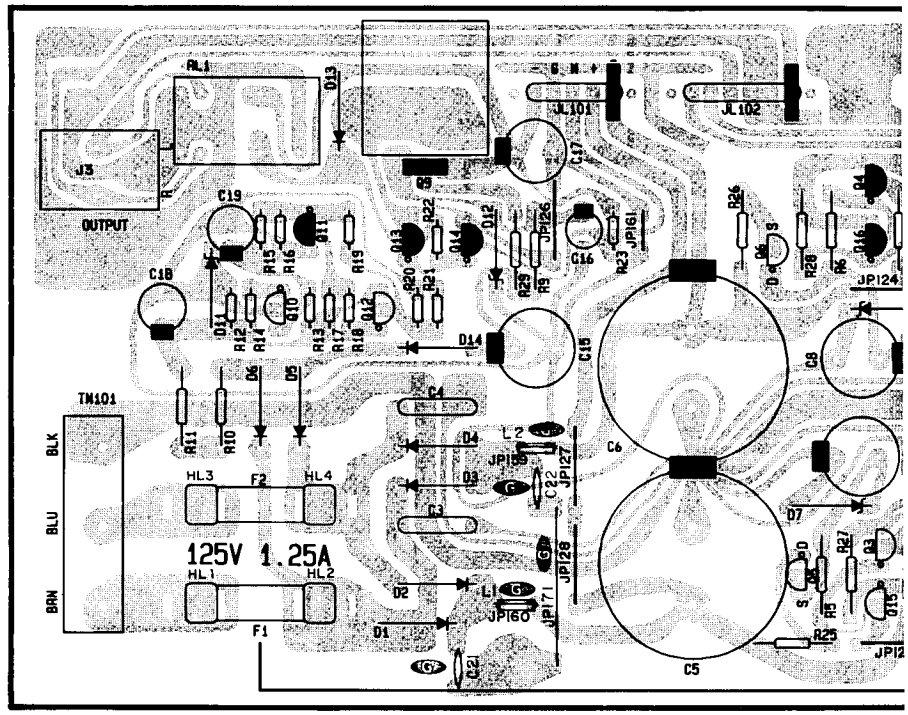
PARTS LIST

Ref. No.	Part No.	Description
114	1117-78	SERIAL LABEL, BOTTOM
116	1756-CSA	LABEL, CSA (UA)
134	1424-21701	CABI BACK BOTTOM
156	1319-7181	LEG
166	2219-7093	METAL FITTG, TRANS
167	2219-8149	METAL FITTG, TRANS
168	2219-8150	METAL FITTG
170	2219-8180	METAL FITTG
196	2360-7014	SPECIAL BOSS

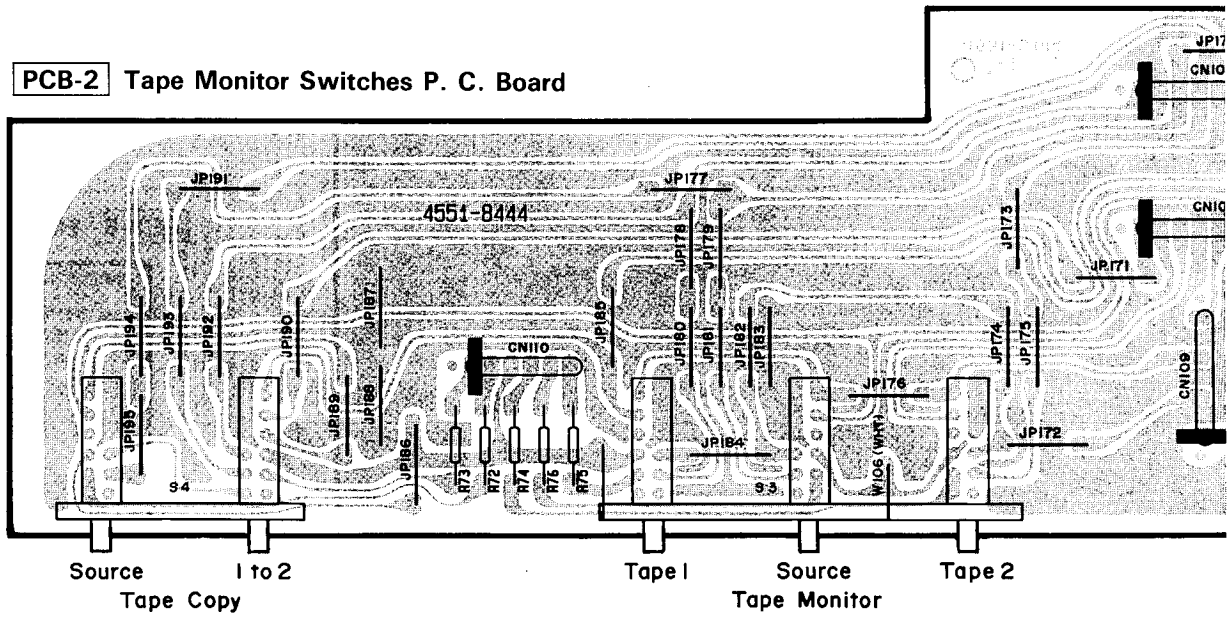
Ref. No.	Part No.	Description
203	2440-7019	SPECIAL NUT, TRANS
222	2327-R0140104	SCREW, TRANS
230	2347-R0130064	SCREW
232	2347-R0130084	SCREW, CABI BACK
234	2347-R0140124	SCREW, LEG
TI	5584-701554	XFORMER, POWER (UA)
TI	5584-702453	XFORMER, POWER (G)
TI	5584-703453	XFORMER, POWER (N)

P. C. BOARDS

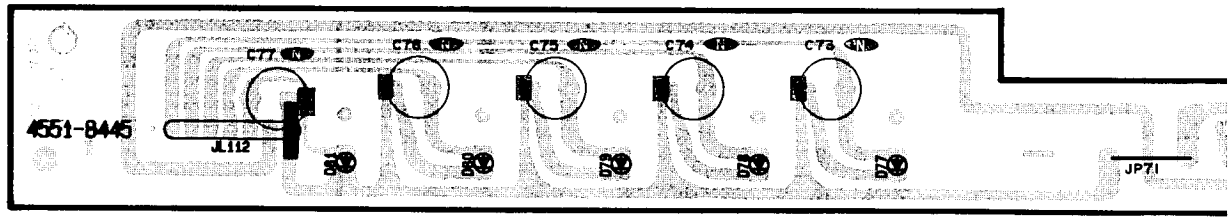
PCB-1 Power Supply P. C. Board



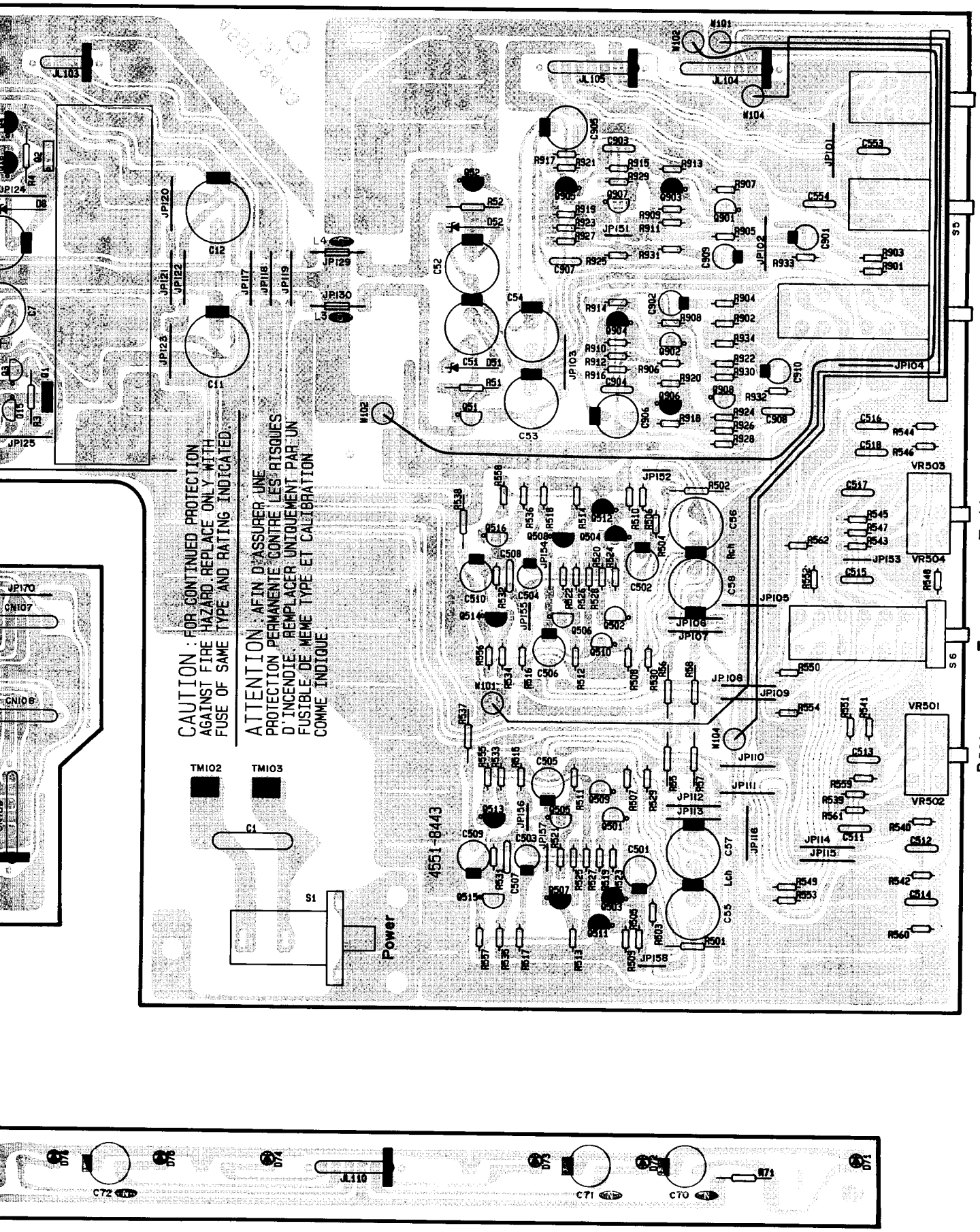
PCB-2 Tape Monitor Switches P. C. Board



PCB-3 Function Indicators P. C. Board

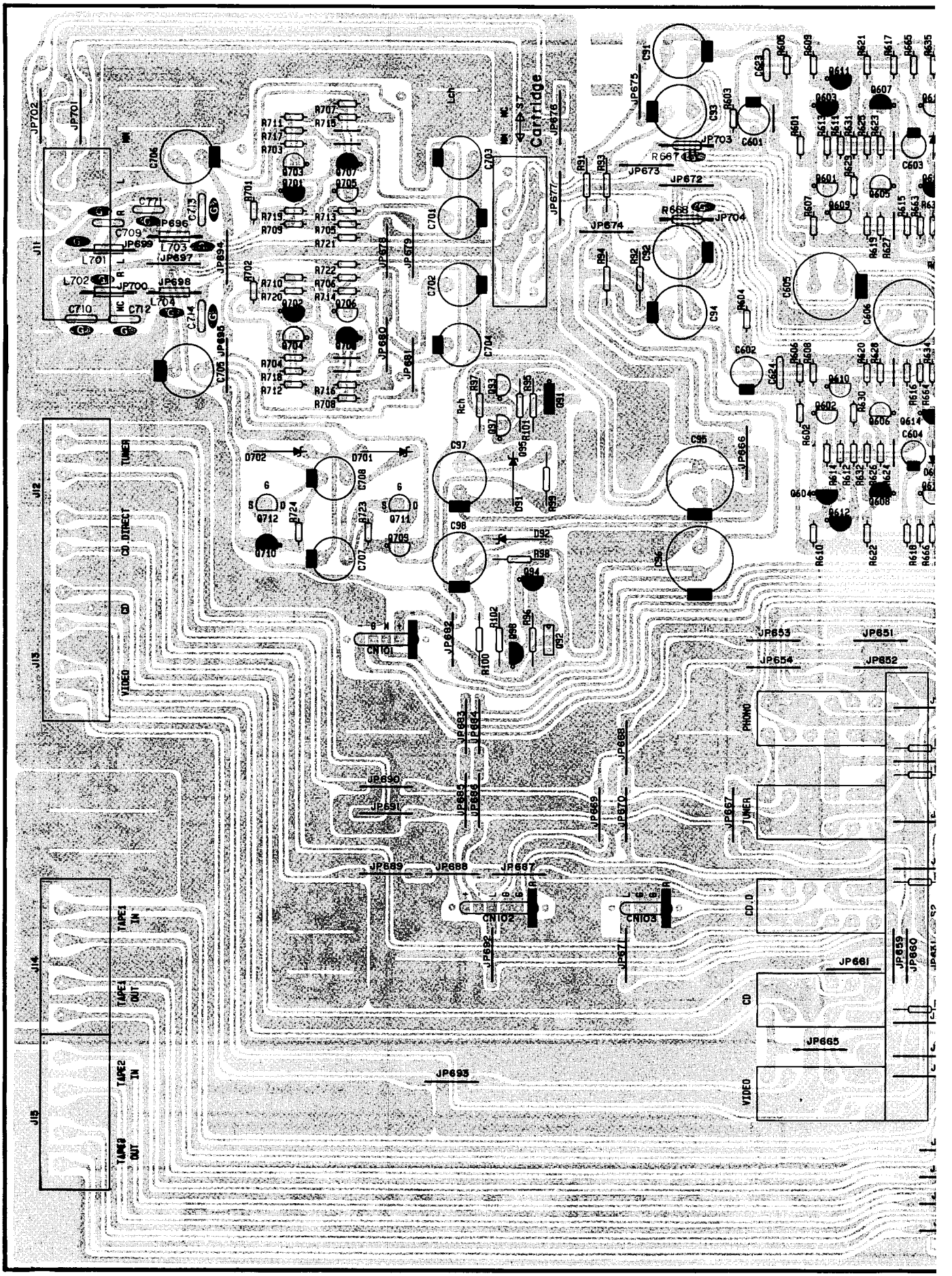


	F	G	H	I	J

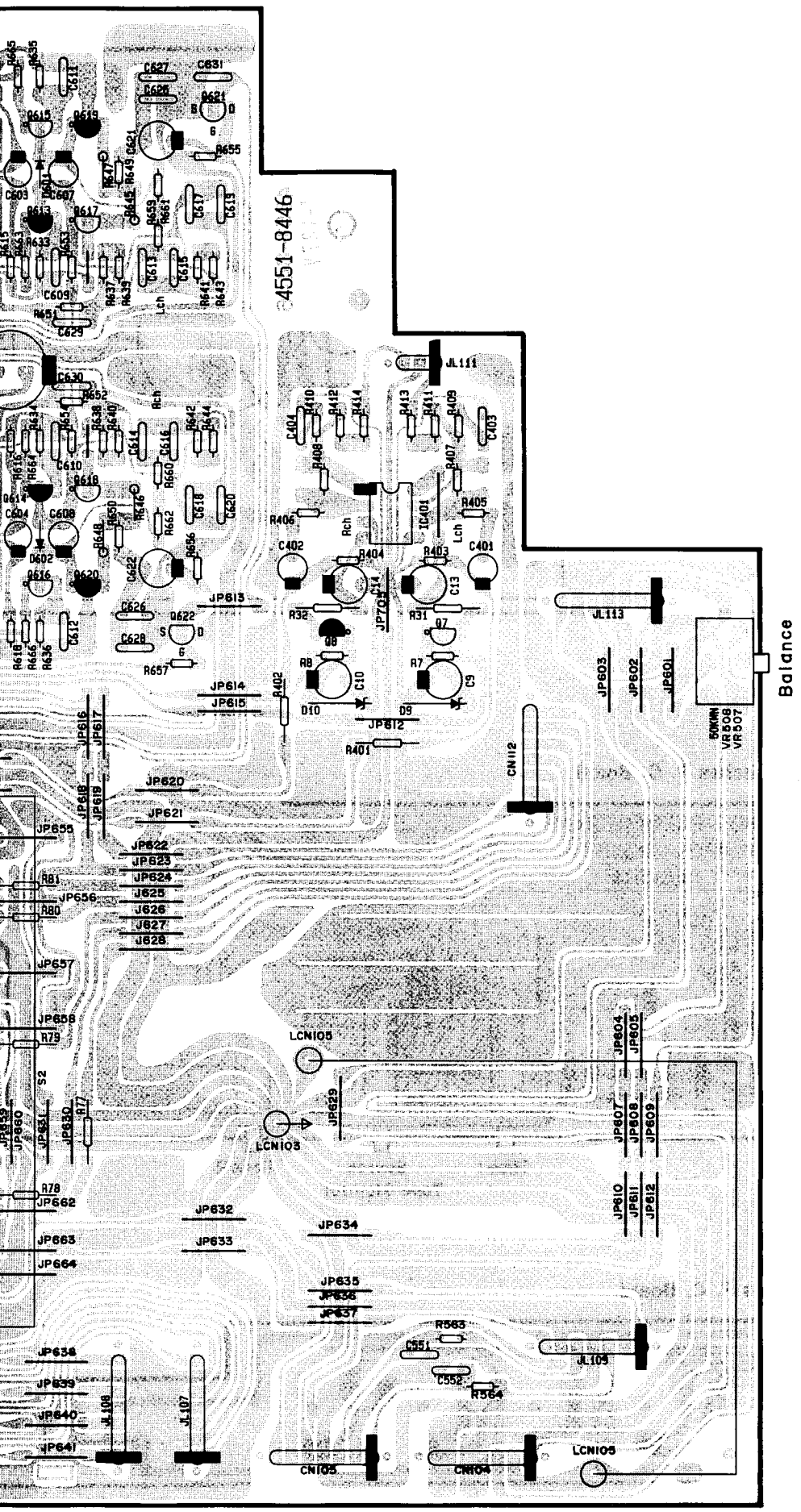

CAUTION : FOR CONTINUED PROTECTION
AGAINST FIRE HAZARD, REPLACE ONLY WITH
FUSE OF SAME TYPE AND RATING INDICATED.
ATTENTION : AFIN D'ASSURER UNE
PROTECTION PERMANENTE CONTRE LES RISQUES
D'INCENDIE, REMPLACER UNIQUEMENT PAR UN
FUSIBLE DE MEME TYPE ET CALIBRATION
COMME INDIQUE.
4551-8443
Power
Bass
Tone
Defeat
Treble
Phase-Correct
Loudness
Subsonic
Mono
S1
S5
S6
VR501
VR502
VR503
VR504
TM102
TM103
JL103
JL104
JL105
JL110
CN107
CN108
JP170
C70
C71
C72

P. C. BOARDS

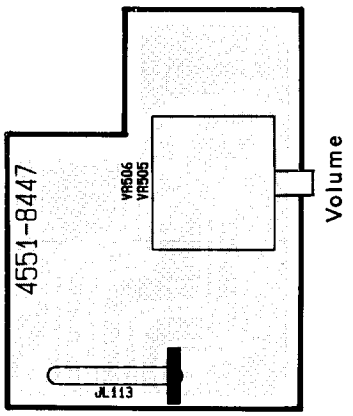
PCB-4 Pre Amp. P. C. Board



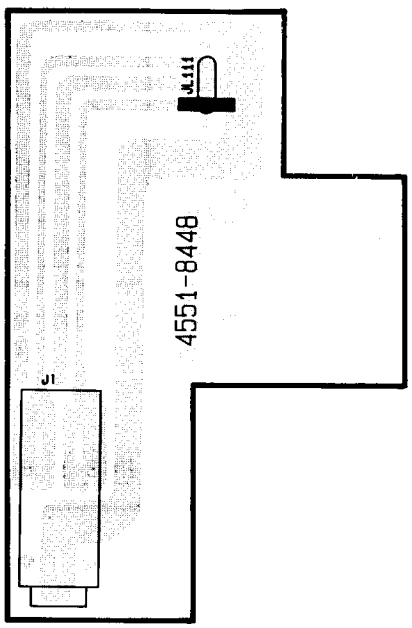
F G H I J



PCB-5 Volume P. C. Board



PCB-6 Headphone Jack P. C. Board



ELECTRICAL PARTS LIST

Ser. No.	Ref. No.	Part No.	Description
		PCB-1 POWER SUPPLY P. C. BOARD	
		CAPACITORS	
794	C1	5352-1030961	CAP, MTL .01μ UA N
794A	C1	5352-1030958	CAP, MTL .01μ G
795	C3	5352-1041957	CAP, MTL .1μ
795	C4	5352-1041957	CAP, MTL .1μ
792	C5	5341-478F0955	CAP, ELE 4700μ/50V
792	C6	5341-478F0955	CAP, ELE 4700μ/50V
765	C7	5345-337D041	CAP, MINI ELE 330μ/25V
765	C8	5345-337D041	CAP, MINI ELE 330μ/25V
766	C11	5345-477D041	CAP, MINI ELE 470μ/25V
766	C12	5345-477D041	CAP, MINI ELE 470μ/25V
777	C15	5345-227E041	CAP, MINI ELE 220μ/35V
778	C16	5345-476D041	CAP, MINI ELE 47μ/25V
779	C17	5345-107D041	CAP, MINI ELE 100μ/25V
720	C18	5345-106D041	CAP, MINI ELE 10μ/25V
721	C19	5345-336B0951	CAP, MINI ELE 33μ/10V
047A	C21	5361-473ZF	CAP, CER .047μ G
047A	C22	5361-473ZF	CAP, CER .047μ G
601	C51	5345-337C041	CAP, MINI ELE 330μ/16V
601	C52	5345-337C041	CAP, MINI ELE 330μ/16V
601	C53	5345-337C041	CAP, MINI ELE 330μ/16V
601	C54	5345-337C041	CAP, MINI ELE 330μ/16V
764	C55	5345-337D041	CAP, MINI ELE 330μ/25V
764	C56	5345-337D041	CAP, MINI ELE 330μ/25V
764	C57	5345-337D041	CAP, MINI ELE 330μ/25V
764	C58	5345-337D041	CAP, MINI ELE 330μ/25V
629	C501	5345-106C0951	CAP, MINI ELE 10μ/16V
629	C502	5345-106C0951	CAP, MINI ELE 10μ/16V
632	C503	5345-107B041	CAP, MINI ELE 100μ/10V
632	C504	5345-107B041	CAP, MINI ELE 100μ/10V
630	C505	5345-226D0951	CAP, MINI ELE 22μ/25V
630	C506	5345-226D0951	CAP, MINI ELE 22μ/25V
637	C507	5353-010934	CAP, MCA 1p
637	C508	5353-010934	CAP, MCA 1p
631	C509	5345-476C0951	CAP, MINI ELE 47μ/16V
631	C510	5345-476C0951	CAP, MINI ELE 47μ/16V
640	C511	5354-273JIHM	CAP, MYL .027μ
640	C512	5354-273JIHM	CAP, MYL .027μ
639	C513	5354-154593	CAP, MYL .15μ
639	C514	5354-154593	CAP, MYL .15μ
642	C515	5354-682JIHM	CAP, MYL 6800p
642	C516	5354-682JIHM	CAP, MYL 6800p
641	C517	5354-393JIHM	CAP, MYL .039μ
641	C518	5354-393JIHM	CAP, MYL .039μ
645	C553	5354-394593	CAP, MYL .39μ
645	C554	5354-394593	CAP, MYL .39μ
598	C901	5345-104F0951	CAP, MINI ELE .1μ/50V
598	C902	5345-104F0951	CAP, MINI ELE .1μ/50V
603	C903	5354-154593	CAP, MYL .15μ
603	C904	5354-154593	CAP, MYL .15μ
600	C905	5345-476D041	CAP, MINI ELE 47μ/25V
600	C906	5345-476D041	CAP, MINI ELE 47μ/25V
604	C907	5354-334593	CAP, MYL .33μ
604	C908	5354-334593	CAP, MYL .33μ
599	C909	5345-224F0951	CAP, MINI ELE .22μ/50V
599	C910	5345-224F0951	CAP, MINI ELE .22μ/50V
		RESISTORS	
769	R3	5135-331522	RES, CBN 1/2P 330
769	R4	5135-331522	RES, CBN 1/2P 330
768	R5	5135-101522	RES, CBN 1/2P 100
768	R6	5135-101522	RES, CBN 1/2P 100
782	R9	5135-222522	RES, CBN 1/2P 2.2K
723	R10	5135-182522	RES, CBN 1/2P 1.8K
723	R11	5135-182522	RES, CBN 1/2P 1.8K
724	R12	5232-103J16P	RES, CBN 1/6P 10K
726	R13	5232-334J16P	RES, CBN 1/6P 330K
725	R14	5232-472J16P	RES, CBN 1/6P 4.7K
727	R15	5232-684J16P	RES, CBN 1/6P 680K
728	R16	5232-224J16P	RES, CBN 1/6P 220K
729	R17	5232-104J16P	RES, CBN 1/6P 100K
729	R18	5232-104J16P	RES, CBN 1/6P 100K
730	R19	5232-225J16P	RES, CBN 1/6P 2.2M
724	R20	5232-103J16P	RES, CBN 1/6P 10K
731	R21	5232-222J16P	RES, CBN 1/6P 2.2K
732	R22	5232-223J16P	RES, CBN 1/6P 22K
732	R23	5232-223J16P	RES, CBN 1/6P 22K
769	R25	5135-331522	RES, CBN 1/2P 330
769	R26	5135-331522	RES, CBN 1/2P 330
767	R27	5135-2R2522	RES, CBN 1/2P 2.2
767	R28	5135-2R2522	RES, CBN 1/2P 2.2
781	⚠R29	5102-1004713	RES, FUSE 10
615	R51	5135-182522	RES, CBN 1/2P 1.8K
615	R52	5135-182522	RES, CBN 1/2P 1.8K
770	⚠R55	5102-2204715	RES, FUSE 22
770	⚠R56	5102-2204715	RES, FUSE 22
770	⚠R57	5102-2204715	RES, FUSE 22
770	⚠R58	5102-2204715	RES, FUSE 22
668	R501	5135-331522	RES, CBN 1/2P 330
668	R502	5135-331522	RES, CBN 1/2P 330
653	R503	5232-224J16P	RES, CBN 1/6P 220K
653	R504	5232-224J16P	RES, CBN 1/6P 220K
654	R505	5232-394J16P	RES, CBN 1/6P 390K
654	R506	5232-394J16P	RES, CBN 1/6P 390K
652	R507	5232-182J16P	RES, CBN 1/6P 1.8K
652	R508	5232-182J16P	RES, CBN 1/6P 1.8K
652	R509	5232-182J16P	RES, CBN 1/6P 1.8K
652	R510	5232-182J16P	RES, CBN 1/6P 1.8K
652	R511	5232-182J16P	RES, CBN 1/6P 1.8K
652	R512	5232-182J16P	RES, CBN 1/6P 1.8K
652	R513	5232-182J16P	RES, CBN 1/6P 1.8K
652	R514	5232-182J16P	RES, CBN 1/6P 1.8K
656	R515	5232-103J16P	RES, CBN 1/6P 10K
656	R516	5232-103J16P	RES, CBN 1/6P 10K
656	R517	5232-103J16P	RES, CBN 1/6P 10K
656	R518	5232-103J16P	RES, CBN 1/6P 10K
655	R519	5232-271J16P	RES, CBN 1/6P 270
655	R520	5232-271J16P	RES, CBN 1/6P 270
655	R521	5232-271J16P	RES, CBN 1/6P 270
655	R522	5232-271J16P	RES, CBN 1/6P 270
655	R523	5232-271J16P	RES, CBN 1/6P 270
655	R524	5232-271J16P	RES, CBN 1/6P 270
655	R525	5232-271J16P	RES, CBN 1/6P 270
655	R526	5232-271J16P	RES, CBN 1/6P 270
657	R527	5232-153J16P	RES, CBN 1/6P 15K
657	R528	5232-153J16P	RES, CBN 1/6P 15K
658	R529	5232-473J16P	RES, CBN 1/6P 47K
658	R530	5232-473J16P	RES, CBN 1/6P 47K
659	R531	5232-274J16P	RES, CBN 1/6P 270K
659	R532	5232-274J16P	RES, CBN 1/6P 270K
664	R533	5232-181J16P	RES, CBN 1/6P 180
664	R534	5232-181J16P	RES, CBN 1/6P 180
664	R535	5232-181J16P	RES, CBN 1/6P 180
664	R536	5232-181J16P	RES, CBN 1/6P 180
668	R537	5135-331522	RES, CBN 1/2P 330
668	R538	5135-331522	RES, CBN 1/2P 330
657	R539	5232-153J16P	RES, CBN 1/6P 15K
657	R540	5232-153J16P	RES, CBN 1/6P 15K
660	R541	5232-272J16P	RES, CBN 1/6P 2.7K
660	R542	5232-272J16P	RES, CBN 1/6P 2.7K
661	R543	5232-122J16P	RES, CBN 1/6P 1.2K
661	R544	5232-122J16P	RES, CBN 1/6P 1.2K
662	R545	5232-121J16P	RES, CBN 1/6P 120
662	R546	5232-121J16P	RES, CBN 1/6P 120
651	R547	5232-331J16P	RES, CBN 1/6P 330
651	R548	5232-331J16P	RES, CBN 1/6P 330
657	R549	5232-153J16P	RES, CBN 1/6P 15K
657	R550	5232-153J16P	RES, CBN 1/6P 15K
663	R551	5232-122J16P	RES, CBN 1/6P 1.2K
663	R552	5232-122J16P	RES, CBN 1/6P 1.2K
665	R553	5232-202J16P	RES, CBN 1/6P 2K
665	R554	5232-202J16P	RES, CBN 1/6P 2K
667	R555	5232-121J16P	RES, CBN 1/6P 120

Ser. No.	Ref. No.	Part No.	Description
667	R556	5232-121J16P	RES, CBN 1/6P 120
667	R557	5232-121J16P	RES, CBN 1/6P 120
667	R558	5232-121J16P	RES, CBN 1/6P 120
669	R559	5232-683J16P	RES, CBN 1/6P 68K
669	R560	5232-683J16P	RES, CBN 1/6P 68K
666	R561	5232-392J16P	RES, CBN 1/6P 3.9K
666	R562	5232-392J16P	RES, CBN 1/6P 3.9K
606	R901	5232-224J16P	RES, CBN 1/6P 220K
606	R902	5232-224J16P	RES, CBN 1/6P 220K
607	R903	5232-102J16P	RES, CBN 1/6P 1K
607	R904	5232-102J16P	RES, CBN 1/6P 1K
608	R905	5232-684J16P	RES, CBN 1/6P 680K
608	R906	5232-684J16P	RES, CBN 1/6P 680K
606	R907	5232-224J16P	RES, CBN 1/6P 220K
606	R908	5232-224J16P	RES, CBN 1/6P 220K
607	R909	5232-102J16P	RES, CBN 1/6P 1K
607	R910	5232-102J16P	RES, CBN 1/6P 1K
609	R911	5232-332J16P	RES, CBN 1/6P 3.3K
609	R912	5232-332J16P	RES, CBN 1/6P 3.3K
609	R913	5232-332J16P	RES, CBN 1/6P 3.3K
609	R914	5232-332J16P	RES, CBN 1/6P 3.3K
610	R915	5232-183J16P	RES, CBN 1/6P 18K
610	R916	5232-183J16P	RES, CBN 1/6P 18K
616	R917	5232-472J16P	RES, CBN 1/6P 4.7K
616	R918	5232-472J16P	RES, CBN 1/6P 4.7K
611	R919	5232-562J16P	RES, CBN 1/6P 5.6K
611	R920	5232-562J16P	RES, CBN 1/6P 5.6K
609	R921	5232-332J16P	RES, CBN 1/6P 3.3K
609	R922	5232-332J16P	RES, CBN 1/6P 3.3K
610	R923	5232-183J16P	RES, CBN 1/6P 18K
610	R924	5232-183J16P	RES, CBN 1/6P 18K
612	R925	5232-331J16P	RES, CBN 1/6P 330
612	R926	5232-331J16P	RES, CBN 1/6P 330
609	R927	5232-332J16P	RES, CBN 1/6P 3.3K
609	R928	5232-332J16P	RES, CBN 1/6P 3.3K
613	R929	5232-221J16P	RES, CBN 1/6P 220
613	R930	5232-221J16P	RES, CBN 1/6P 220
612	R931	5232-331J16P	RES, CBN 1/6P 330
612	R932	5232-331J16P	RES, CBN 1/6P 330
614	R933	5232-104J16P	RES, CBN 1/6P 100K
614	R934	5232-104J16P	RES, CBN 1/6P 100K
		TRANSISTORS	
758	Q1	5612-1015(O)or(Y)	XISTOR, PNP A
757	Q2	5614-1406(O)	XISTOR, NPN A
759	Q3	5613-2603(F)or(E)	XISTOR, NPN R
760	Q4	5611-1115(F)or(E)	XISTOR, PNP R
761	Q5	5616-2SK246GR	FET, N-CH
761	Q6	5616-2SK246GR	FET, N-CH
771	Q9	5612-1015(O)or(Y)	XISTOR, PNP A
713	Q10	5613-2603(F)or(E)	XISTOR, NPN R
712	Q11	5611-1115(F)or(E)	XISTOR, PNP R
713	Q12	5613-2603(F)or(E)	XISTOR, NPN R
711	Q13	5612-647(C)	XISTOR, PNP A
712	Q14	5611-1115(F)or(E)	XISTOR, PNP R
759	Q15	5613-2603(F)or(E)	XISTOR, NPN R
760	Q16	5611-1115(F)or(E)	XISTOR, PNP R
593	Q51	5614-667(C)	XISTOR, NPN A
594	Q52	5612-647(C)	XISTOR, PNP A
621	Q501	5613-2240(BL)	XISTOR, NPN R
621	Q502	5613-2240(BL)	XISTOR, NPN R
622	Q503	5611-970(BL)	XISTOR, PNP R
622	Q504	5611-970(BL)	XISTOR, PNP R
621	Q505	5613-2240(BL)	XISTOR, NPN R
621	Q506	5613-2240(BL)	XISTOR, NPN R
622	Q507	5611-970(BL)	XISTOR, PNP R
622	Q508	5611-970(BL)	XISTOR, PNP R
623	Q509	5613-2320L(F)	XISTOR, NPN R
623	Q510	5613-2320L(F)	XISTOR, NPN R
624	Q511	5611-999L(F)	XISTOR, PNP R
624	Q512	5611-999L(F)	XISTOR, PNP R
625	Q513	5612-646(C)	XISTOR, PNP A
625	Q514	5612-646(C)	XISTOR, PNP A
626	Q515	5614-666(C)	XISTOR, NPN A
626	Q516	5614-666(C)	XISTOR, NPN A
591	Q901	5613-2603(F)or(E)	XISTOR, NPN R
591	Q902	5613-2603(F)or(E)	XISTOR, NPN R
592	Q903	5611-1115(F)or(E)	XISTOR, PNP R
592	Q904	5611-1115(F)or(E)	XISTOR, PNP R
592	Q905	5611-1115(F)or(E)	XISTOR, PNP R
592	Q906	5611-1115(F)or(E)	XISTOR, PNP R
591	Q907	5613-2603(F)or(E)	XISTOR, NPN R
591	Q908	5613-2603(F)otr(E)	XISTOR, NPN R
		DIODES	
790	D1	5632-10DF2	DIODE, RECT
790	D2	5632-10DF2	DIODE, RECT
790	D3	5632-10DF2	DIODE, RECT
790	D4	5632-10DF2	DIODE, RECT
773	D5	5632-10DF2	DIODE, RECT
773	D6	5632-10DF2	DIODE, RECT
763	D7	5635-HZ24-1L	DIODE, ZEER
763	D8	5635-HZ24-1L	DIODE, ZEER
715	D11	5635-RD5R6EB2	DIODE, ZENER
775	D12	5635-HZ24-1L	DIODE, ZENER
716	D13	5636-1S2471	DIODE, SWITCH
773	D14	5632-10DF2	DIODE, RECT
596	D51	5635-HZ15-1L	DIODE, ZENER
596	D52	5635-HZ15-1L	DIODE, ZENER
		COILS	
046A	L1	5597-45502	CORE, BEADS (G)
046A	L2	5597-45502	CORE, BEADS (G)
046A	L3	5597-45502	CORE, BEADS (G)
046A	L4	5597-45502	CORE, BEADS (G)
		CONTROLS	
814	VR501	5113-10445122	RES, V CBN 16 100K
814	VR502	5113-10445122	RES, V CBN 16 100K
816	VR503	5113-50344122	RES, V CBN 16 50K
816	VR504	5113-50344122	RES, V CBN 16 50K
		MISCELLANEOUS	
832	J3	4482-7136	PIN JACK, 2P
801	⚠S1	4431-A017191	PUSH SWITCH, POWER (UA) (N)
801A	⚠S1	4431-A017291	PUSH SWITCH, POWER (G)
805	S5	4431-03087167	PUSH SWITCH
806	S6	4431-A047153	PUSH SWITCH
798	⚠	4472-0131	HOLDER, FUSE
798	⚠	4472-0131	HOLDER, FUSE
798	⚠	4472-0131	HOLDER, FUSE
798	⚠	4472-0131	HOLDER, FUSE
884	JL101	4242-R0405141	JUMPER LEAD
883	JL102	4242-R0406101	JUMPER LEAD
885	JL103	4242-R0404101	JUMPER LEAD
882	JL104	4242-R0407500	JUMPER LEAD
882	JL105	4242-R0407500	JUMPER LEAD
718	⚠RL1	4331-2024736	RELAY
800	TM101	4214-11033	TERMINAL
799	TM102	4214-122	TERMINAL
799	TM103	4214-122	TERMINAL
908	LCN104	4163-0122024	CONNECTOR W/W

PCB-2 TAPE MONITOR SWITCHES P. C. BOARD

		RESISTORS	
784	R72	5135-152522	RES, CBN 1/2P 1.5K
784	R73	5135-152522	RES, CBN 1/2P 1.5K
784	R74	5135-152522	RES, CBN 1/2P 1.5K
784	R75	5135-152522	RES, CBN 1/2P 1.5K
784	R76	5135-152522	RES, CBN 1/2P 1.5K
		MISCELLANEOUS	
803	S3	4431-03127164	PUSH SWITCH
804	S4	4431-02087163	PUSH SWITCH
861	CN107	4443-070185	CONNECTOR
861	CN108	4443-070185	CONNECTOR
861	CN109	4443-070185	CONNECTOR
862	CN110	4443-060185	CONNECTOR

PCB-3 FUNCTION INDICATORS P. C. BOARD

		CAPACITORS	
041B	C70	5345-106C0951	CAP, MINI ELE 10μ/16V (N)
041B	C71	5345-106C0951	CAP, MINI ELE 10μ/16V (N)

Ser. No.	Ref. No.	Part No.	Description
041B	C72	5345-106C0951	CAP, MINI ELE 10μ/16V (N)
042B	C73	5345-106C0951	CAP, MINI ELE 10μ/16V (N)
042B	C74	5345-106C0951	CAP, MINI ELE 10μ/16V (N)
042B	C75	5345-106C0951	CAP, MINI ELE 10μ/16V (N)
042B	C76	5345-106C0951	CAP, MINI ELE 10μ/16V (N)
042B	C77	5345-106C0951	CAP, MINI ELE 10μ/16V (N)
		RESISTORS	
786	R71	5135-182522	RES, CBN 1/2P 1.8K
		DIODES	
822	D71	5637-GL5EG21	LED
822	D72	5637-GL5EG21	LED
822	D73	5637-GL5EG21	LED
822	D74	5637-GL5EG21	LED
822	D75	5637-GL5EG21	LED
822	D76	5637-GL5EG21	LED
822	D77	5637-GL5EG21	LED
822	D78	5637-GL5EG21	LED
822	D79	5637-GL5EG21	LED
822	D80	5637-GL5EG21	LED
822	D81	5637-GL5EG21	LED
		MISCELLANEOUS	
887	JL110	4242-R0206600	JUMPER LEAD
886	JL112	4242-R0207101	JUMPER LEAD

PCB-4 PRE AMP. P. C. BOARD

		CAPACITORS	
699	C9	5345-107C041	CAP, MINI ELE 100μ/16V
699	C10	5345-107C041	CAP, MINI ELE 100μ/16V
699	C13	5345-107C041	CAP, MINI ELE 100μ/16V
699	C14	5345-107C041	CAP, MINI ELE 100μ/16V
750	C91	5345-337D041	CAP, MINI ELE 330μ/25V
750	C92	5345-337D041	CAP, MINI ELE 330μ/25V
750	C93	5345-337D041	CAP, MINI ELE 330μ/25V
750	C94	5345-337D041	CAP, MINI ELE 330μ/25V
749	C95	5345-477D041	CAP, MINI ELE 470μ/25V
749	C96	5345-477D041	CAP, MINI ELE 470μ/25V
750	C97	5345-337D041	CAP, MINI ELE 330μ/25V
750	C98	5345-337D041	CAP, MINI ELE 330μ/25V
683	C401	5345-475F0951	CAP, MINI ELE 4.7μ/50V
683	C402	5345-475F0951	CAP, MINI ELE 4.7μ/50V
685	C403	5359-151585I	CAP, PPP 150p
685	C404	5359-151585I	CAP, PPP 150p
635	C551	5353-101534	CAP, MCA 100p
635	C552	5353-101534	CAP, MCA 100p
543	C601	5345-106D0951	CAP, MINI ELE 10μ/25V
543	C602	5345-106D0951	CAP, MINI ELE 10μ/25V
546	C603	5345-107B041	CAP, MINI ELE 100μ/10V
546	C604	5345-107B041	CAP, MINI ELE 100μ/10V
545	C605	5345-477B0952	CAP, MINI ELE 470μ/10V
545	C606	5345-477B0952	CAP, MINI ELE 470μ/10V
547	C607	5345-226C041	CAP, MINI ELE 22μ/16V
547	C608	5345-226C041	CAP, MINI ELE 22μ/16V
550	C609	5353-100934	CAP, MCA 10p
550	C610	5353-100934	CAP, MCA 10p
550	C611	5353-100934	CAP, MCA 10p
550	C612	5353-100934	CAP, MCA 10p
554	C613	5359-472585I	CAP, PPP 4700p
554	C614	5359-472585I	CAP, PPP 4700p
556	C615	5359-102585I	CAP, PPP 1000p
556	C616	5359-102585I	CAP, PPP 1000p
553	C617	5359-182585I	CAP, PPP 1800p
553	C618	5359-182585I	CAP, PPP 1800p
552	C619	5359-181585I	CAP, PPP 180p
552	C620	5359-181585I	CAP, PPP 180p
544	C621	5345-336D0951	CAP, MINI ELE 33μ/25V
544	C622	5345-336D0951	CAP, MINI ELE 33μ/25V
549	C623	5353-121534	CAP, MCA 120p (UA) (N)
549A	C623	5359-331585I	CAP, PPP 330p (G)
549	C624	5353-121534	CAP, MCA 120p (UA) (N)
549A	C624	5359-331585I	CAP, PPP 330p (G)
555	C625	5359-222585I	CAP, PPP 2200p
555	C626	5359-222585I	CAP, PPP 2200p
557	C627	5359-331585I	CAP, PPP 330p
557	C628	5359-331585I	CAP, PPP 330p

Ser. No.	Ref. No.	Part No.	Description
551	C629	5353-010934	CAP, MCA 1p
551	C630	5353-010934	CAP, MCA 1p
558	C631	5354-102KIHM	CAP, MYL 1000p
504	C701	5345-106F0951	CAP, MINI ELE 10μ/50V
504	C702	5345-106F0951	CAP, MINI ELE 10μ/50V
504	C703	5345-106F0951	CAP, MINI ELE 10μ/50V
504	C704	5345-106F0951	CAP, MINI ELE 10μ/50V
522	C705	5345-337C041	CAP, MINI ELE 330μ/16V
522	C706	5345-337C041	CAP, MINI ELE 330μ/16V
522	C707	5345-337C041	CAP, MINI ELE 330μ/16V
522	C708	5345-337C041	CAP, MINI ELE 330μ/16V
042A	C709	5359-101585I	CAP, PPP 100p (G)
042A	C710	5359-101585I	CAP, PPP 100p (G)
043A	C711	5359-102585I	CAP, PPP 1000p (G)
043A	C712	5359-102585I	CAP, PPP 1000p (G)
044A	C713	5354-473JIHM	CAP, MYL .047μ (G)
044A	C714	5354-473JIHM	CAP, MYL .047μ (G)
		RESISTORS	
701	R7	5232-182JI6P	RES, CBN 1/6P 1.8K
701	R8	5232-182JI6P	RES, CBN 1/6P 1.8K
702	R31	5135-221522	RES, CBN 1/2P 220
702	R32	5135-221522	RES, CBN 1/2P 220
785	R77	5135-182522	RES, CBN 1/2P 1.8K
785	R78	5135-182522	RES, CBN 1/2P 1.8K
785	R79	5135-182522	RES, CBN 1/2P 1.8K
785	R80	5135-182522	RES, CBN 1/2P 1.8K
785	R81	5135-182522	RES, CBN 1/2P 1.8K
756	⚠R91	5102-2204715	RES, FUSE 22
756	⚠R92	5102-2204715	RES, FUSE 22
756	⚠R93	5102-2204715	RES, FUSE 22
756	⚠R94	5102-2204715	RES, FUSE 22
754	R95	5135-331522	RES, CBN 1/2P 330
754	R96	5135-331522	RES, CBN 1/2P 330
753	R97	5135-101522	RES, CBN 1/2P 100
753	R98	5135-101522	RES, CBN 1/2P 100
755	R99	5135-562522	RES, CBN 1/2P 5.6K
755	R100	5135-562522	RES, CBN 1/2P 5.6K
752	R101	5135-2R2522	RES, CBN 1/2P 2.2
752	R102	5135-2R2522	RES, CBN 1/2P 2.2
692	R401	5135-563522	RES, CBN 1/2P 56K
692	R402	5135-563522	RES, CBN 1/2P 56K
691	R403	5232-273JI6P	RES, CBN 1/6P 27K
691	R404	5232-273JI6P	RES, CBN 1/6P 27K
687	R405	5232-683JI6P	RES, CBN 1/6P 68K
687	R406	5232-683JI6P	RES, CBN 1/6P 68K
688	R407	5232-154JI6P	RES, CBN 1/6P 150K
688	R408	5232-154JI6P	RES, CBN 1/6P 150K
689	R409	5232-331JI6P	RES, CBN 1/6P 330
689	R410	5232-331JI6P	RES, CBN 1/6P 330
690	R411	5232-8R2JI6P	RES, CBN 1/6P 8.2
690	R412	5232-8R2JI6P	RES, CBN 1/6P 8.2
690	R413	5232-8R2JI6P	RES, CBN 1/6P 8.2
690	R414	5232-8R2JI6P	RES, CBN 1/6P 8.2
670	R563	5232-102JI6P	RES, CBN 1/6P 1K
670	R564	5232-102JI6P	RES, CBN 1/6P 1K
581	R601	5232-470JI6P	RES, CBN 1/6P 47
581	R602	5232-470JI6P	RES, CBN 1/6P 47
563	R603	5232-823JI6P	RES, CBN 1/6P 82K
563	R604	5232-823JI6P	RES, CBN 1/6P 82K
564	R605	5232-124JI6P	RES, CBN 1/6P 120K
564	R606	5232-124JI6P	RES, CBN 1/6P 120K
561	R607	5232-272JI6P	RES, CBN 1/6P 2.7K
561	R608	5232-272JI6P	RES, CBN 1/6P 2.7K
561	R609	5232-272JI6P	RES, CBN 1/6P 2.7K
561	R610	5232-272JI6P	RES, CBN 1/6P 2.7K
566	R611	5232-331JI6P	RES, CBN 1/6P 330
566	R612	5232-331JI6P	RES, CBN 1/6P 330
566	R613	5232-331JI6P	RES, CBN 1/6P 330
566	R614	5232-331JI6P	RES, CBN 1/6P 330
567	R615	5232-123JI6P	RES, CBN 1/6P 12K
567	R616	5232-123JI6P	RES, CBN 1/6P 12K
567	R617	5232-123JI6P	RES, CBN 1/6P 12K
567	R618	5232-123JI6P	RES, CBN 1/6P 12K
561	R619	5232-272JI6P	RES, CBN 1/6P 2.7K
561	R620	5232-272JI6P	RES, CBN 1/6P 2.7K
561	R621	5232-272JI6P	RES, CBN 1/6P 2.7K

Ser. No.	Ref. No.	Part No.	Description
561	R622	5232-272J16P	RES, CBN 1/6P 2.7K
566	R623	5232-331J16P	RES, CBN 1/6P 330
566	R624	5232-331J16P	RES, CBN 1/6P 330
566	R625	5232-331J16P	RES, CBN 1/6P 330
566	R626	5232-331J16P	RES, CBN 1/6P 330
568	R627	5232-821J16P	RES, CBN 1/6P 820
568	R628	5232-821J16P	RES, CBN 1/6P 820
570	R629	5232-682J16P	RES, CBN 1/6P 6.8K
570	R630	5232-682J16P	RES, CBN 1/6P 6.8K
570	R631	5232-682J16P	RES, CBN 1/6P 6.8K
570	R632	5232-682J16P	RES, CBN 1/6P 6.8K
562	R633	5232-471J16P	RES, CBN 1/6P 470
562	R634	5232-471J16P	RES, CBN 1/6P 470
562	R635	5232-471J16P	RES, CBN 1/6P 470
562	R636	5232-471J16P	RES, CBN 1/6P 470
571	R637	5232-125J16P	RES, CBN 1/6P 1.2M
571	R638	5232-125J16P	RES, CBN 1/6P 1.2M
572	R639	5232-563J16P	RES, CBN 1/6P 56K
572	R640	5232-563J16P	RES, CBN 1/6P 56K
573	R641	5232-393J16P	RES, CBN 1/6P 39K
573	R642	5232-393J16P	RES, CBN 1/6P 39K
574	R643	5232-222J16P	RES, CBN 1/6P 2.2K
574	R644	5232-222J16P	RES, CBN 1/6P 2.2K
579	R645	5154-330J25R	RES, CBN 1/4P 33
579	R646	5154-330J25R	RES, CBN 1/4P 33
579	R647	5154-330J25R	RES, CBN 1/4P 33
579	R648	5154-330J25R	RES, CBN 1/4P 33
569	R649	5232-102J16P	RES, CBN 1/6P 1K
569	R650	5232-102J16P	RES, CBN 1/6P 1K
569	R651	5232-102J16P	RES, CBN 1/6P 1K
569	R652	5232-102J16P	RES, CBN 1/6P 1K
578	R653	5232-474J16P	RES, CBN 1/6P 470K
578	R654	5232-474J16P	RES, CBN 1/6P 470K
576	R655	5232-104J16P	RES, CBN 1/6P 100K
576	R656	5232-104J16P	RES, CBN 1/6P 100K
577	R657	5232-105J16P	RES, CBN 1/6P 1M
571	R659	5232-125J16P	RES, CBN 1/6P 1.2M
571	R660	5232-125J16P	RES, CBN 1/6P 1.2M
572	R661	5232-563J16P	RES, CBN 1/6P 56K
572	R662	5232-563J16P	RES, CBN 1/6P 56K
575	R663	5232-121J16P	RES, CBN 1/6P 120
575	R664	5232-121J16P	RES, CBN 1/6P 120
575	R665	5232-121J16P	RES, CBN 1/6P 120
575	R666	5232-121J16P	RES, CBN 1/6P 120
048A	R667	5135-102522	RES, CBN 1/2P 1K G
048A	R668	5135-102522	RES, CBN 1/2P 1K G
514	R701	5232-1R0J16P	RES, CBN 1/6P 1 UA N
514A	R701	5232-100J16P	RES, CBN 1/6P 10 G
514	R702	5232-1R0J16P	RES, CBN 1/6P 1 UA N
514A	R702	5232-100J16P	RES, CBN 1/6P 10 G
515	R703	5232-560J16P	RES, CBN 1/6P 56 UA N
515A	R703	5232-470J16P	RES, CBN 1/6P 47 G
515	R704	5232-560J16P	RES, CBN 1/6P 56 UA N
515A	R704	5232-470J16P	RES, CBN 1/6P 47 G
512	R705	5232-472J16P	RES, CBN 1/6P 4.7K
512	R706	5232-472J16P	RES, CBN 1/6P 4.7K
512	R707	5232-472J16P	RES, CBN 1/6P 4.7K
512	R708	5232-472J16P	RES, CBN 1/6P 4.7K
509	R709	5232-100J16P	RES, CBN 1/6P 10
509	R710	5232-100J16P	RES, CBN 1/6P 10
509	R711	5232-100J16P	RES, CBN 1/6P 10
509	R712	5232-100J16P	RES, CBN 1/6P 10
506	R713	5232-561J16P	RES, CBN 1/6P 560
506	R714	5232-561J16P	RES, CBN 1/6P 560
506	R715	5232-561J16P	RES, CBN 1/6P 560
506	R716	5232-561J16P	RES, CBN 1/6P 560
510	R717	5232-220J16P	RES, CBN 1/6P 22
510	R718	5232-220J16P	RES, CBN 1/6P 22
510	R719	5232-220J16P	RES, CBN 1/6P 22
510	R720	5232-220J16P	RES, CBN 1/6P 22
511	R721	5232-392J16P	RES, CBN 1/6P 3.9K
511	R722	5232-392J16P	RES, CBN 1/6P 3.9K
507	R723	5232-101J16P	RES, CBN 1/6P 100
507	R724	5232-101J16P	RES, CBN 1/6P 100
		INTEGRATED CIRCUITS	
681	IC401	5653-UPC4556C	IC, LINEAR

Ser. No.	Ref. No.	Part No.	Description
		TRANSISTORS	
694	Q7	5614-667(C)	XISTOR, NPN A
695	Q8	5612-647(C)	XISTOR, PNP A
742	Q91	5612-1015(O)or(Y)	XISTOR, PNP A
741	Q92	5614-1406(O)or(Y)	XISTOR, NPN A
743	Q93	5613-2603(F)or(E)	XISTOR, NPN R
744	Q94	5611-1115(F)or(E)	XISTOR, PNP R
743	Q97	5613-2603(F)or(E)	XISTOR, NPN R
744	Q98	5611-1115(F)or(E)	XISTOR, PNP R
531	Q601	5613-2240(BL)	XISTOR, NPN R
531	Q602	5613-2240(BL)	XISTOR, NPN R
532	Q603	5611-970(BL)	XISTOR, PNP R
532	Q604	5611-970(BL)	XISTOR, PNP R
531	Q605	5613-2240(BL)	XISTOR, NPN R
531	Q606	5613-2240(BL)	XISTOR, NPN R
532	Q607	5611-970(BL)	XISTOR, PNP R
532	Q608	5611-970(BL)	XISTOR, PNP R
533	Q609	5613-2320L(F)	XISTOR, NPN R
533	Q610	5613-2320L(F)	XISTOR, NPN R
534	Q611	5611-999L(F)	XISTOR, PNP R
534	Q612	5611-999L(F)	XISTOR, PNP R
535	Q613	5612-646(C)	XISTOR, PNP A
535	Q614	5612-646(C)	XISTOR, PNP A
536	Q615	5614-666(C)	XISTOR, NPN A
536	Q616	5614-666(C)	XISTOR, NPN A
537	Q617	5614-667(C)	XISTOR, NPN A
537	Q618	5614-667(C)	XISTOR, NPN A
538	Q619	5612-647(C)	XISTOR, PNP A
538	Q620	5612-647(C)	XISTOR, PNP A
539	Q621	5616-2SK364(BL)or(V)	FET, N-CH
539	Q622	5616-2SK364(BL)or(V)	FET, N-CH
502	Q701	5611-1190(E)	XISTOR, PNP R
502	Q702	5611-1190(E)	XISTOR, PNP R
501	Q703	5613-2855(D)	XISTOR, NPN R
501	Q704	5613-2855(D)	XISTOR, NPN R
501	Q705	5613-2855(D)	XISTOR, NPN R
501	Q706	5613-2855(D)	XISTOR, NPN R
502	Q707	5611-1190(E)	XISTOR, PNP R
502	Q708	5611-1190(E)	XISTOR, PNP R
517	Q709	5613-2603(F)or(E)	XISTOR, NPN R
518	Q710	5611-1115(F)or(E)	XISTOR, PNP R
519	Q711	5616-2SK246GR	FET, N-CH
519	Q712	5616-2SK246GR	FET, N-CH
		DIODES	
697	D9	5635-HZ15-1L	DIODE, ZENER
697	D10	5635-HZ15-1L	DIODE, ZENER
747	D91	5635-HZ24-1L	DIODE, ZENER
747	D92	5635-HZ24-1L	DIODE, ZENER
541	D601	5641-MV103	VARISTOR
541	D602	5641-MV103	VARISTOR
520	D701	5635-HZ15-1L	DIODE, ZENER
520	D702	5635-HZ15-1L	DIODE, ZENER
		COILS	
045A	L701	5597-45502	CORE, BEADS G
045A	L702	5597-45502	CORE, BEADS G
045A	L703	5597-45502	CORE, BEADS G
045A	L704	5597-45502	CORE, BEADS G
		CONTROLS	
812	VR507	5113-50343122	RES, V CBN 16 50K
812	VR508	5113-50343122	RES, V CBN 16 50K
		MISCELLANEOUS	
831	J11	4484-49	PIN JACK, 4P
831	J12	4484-49	PIN JACK, 4P
831	J13	4484-49	PIN JACK, 4P
831	J14	4484-49	PIN JACK, 4P
831	J15	4484-49	PIN JACK, 4P
802	S2	4431-05207156	PUSH SWITCH
808	S7	4422-70114	REMOTE SWITCH
865	CN101	4443-050185	CONNECTOR
864	CN102	4443-060185	CONNECTOR
866	CN103	4443-040185	CONNECTOR
863	CN104	4443-070185	CONNECTOR
863	CN105	4443-070185	CONNECTOR
863	CN112	4443-070185	CONNECTOR

Ser. No.	Ref. No.	Part No.	Description
880	JL107	4242-R0407800	JUMPER LEAD
879	JL108	4242-R0407121	JUMPER LEAD
881	JL109	4242-R0407800	JUMPER LEAD
889	JL111	4242-R0303101	JUMPER LEAD
888	JL113	4242-R0307800	JUMPER LEAD
913	TM104	4214-11013	TERMINAL
910	LCN103	4163-0114020	CONNECTOR W/W

PCB-5 VOLUME P. C. BOARD

810	VR505	5118-503741	RES, V CBN 40 50K
810	VR506	5118-503741	RES, V CBN 40 50K

PCB-6 HEADPHONE JACK P. C. BOARD

820	J1	4451-00161	JACK, IP

CHASSIS MISCELLANEOUS PARTS LIST

049A	⚠CO1	4443-712	CONNECTOR (G)
797	⚠F1	5732-122031	FUSE (UA)
797A	⚠F1	5732-122030	FUSE (G)
797B	⚠F1	5732-122036	FUSE (N)
797	⚠F2	5732-122031	FUSE (UA)
797A	⚠F2	5732-122030	FUSE (G)
797B	⚠F2	5732-122036	FUSE (N)
837	⚠PI	4161-71151	CORD W/PLUG, AC CORD (UA)
837A	⚠PI	4161-7256	CORD W/PLUG, AC CORD (G)
837B	⚠PI	4161-71148	CORD W/PLUG, AC CORD (N)
041A	⚠S101	4411-102729	ROTARY SWITCH, VOLT SELECT (G)
834	⚠SO1	4474-156	SOCKET, AC OUTLET (UA) (N)
788	⚠T1	5584-701554	XFORMER, POWER (UA)
788A	⚠T1	5584-702453	XFORMER, POWER (G)
788B	⚠T1	5584-703453	XFORMER, POWER (N)
911	LCN110	4163-0119020	CONNECTOR W/W
050A		4150-8	SPECIAL TUBING (G)
029A		2132-5049	SPACER, D12 (G)

PACKAGE PARTS LIST

021A	1756-06303	LABEL, 220V/50Hz (G)
021B	1756-03113	LABEL (N)
022A	1756-03108	LABEL, INT (G)
024A	1119-026	ATTACH SHEET, FTZ SHEET (G)
105	1111-J90195	OWNER GUIDE, UL (UA)
106	1111-J30255	OWNER GUIDE, OG (UA)
106A	1111-J30256	OWNER GUIDE, OG (G)
106B	1111-J2034	OWNER GUIDE, OG (N)
107	1113-717005	OWNER CARD, REPLY CARD (UA)
107B	1113-OC	OWNER CARD, REPLY CARD (N)
108	1119-057	ATTACH SHEET, WARRANTY (UA)
108B	1116-GC	GUARANT CARD, WARRANTY (N)
109	1119-0137	ATTACH SHEET (UA)
111	1241-C12732	POLYETHY BAG, OG (UA) (G)
111B	1241-C12729	POLYETHY BAG, OG (N)
120	1221-717199	CARTON BOX
121	1222-7309	CUSHION, R
122	1222-7310	CUSHION, L
123	1223-11748	SOFT SHEET, SET
125	1241-C1491	POLYETHY BAG, SET
839	4442-14	PIN PLUG, SHORT PIN
905	4161-71174	CORD W/PLUG, CONNECT

ABBREVIATIONS IN PARTS LIST

CAPACITORS

CAP, MINI ELE : Electrolytic
CAP, CER : Ceramic
CAP, PPP : Polypropylene
CAP, MYL : Mylar
CAP, MCA : Mica
CAP, MINI BP : Bipolar
CAP, ELE BP : Electrolytic Bipolar
470μ : 470μF
6800p : 6800pF
.047μ : 0.047μF

RESISTORS

RES, CBN 1/6P : Carbon 1/6W
RES, FUSE : Fuse
RES, CEM 5P : Cement 5W
RES, MTL 1P : Metal 1W
2.2K : 2.2kΩ
220 : 220Ω

TRANSISTORS

XISTOR : Transistor
FET : Field Effect Transistor

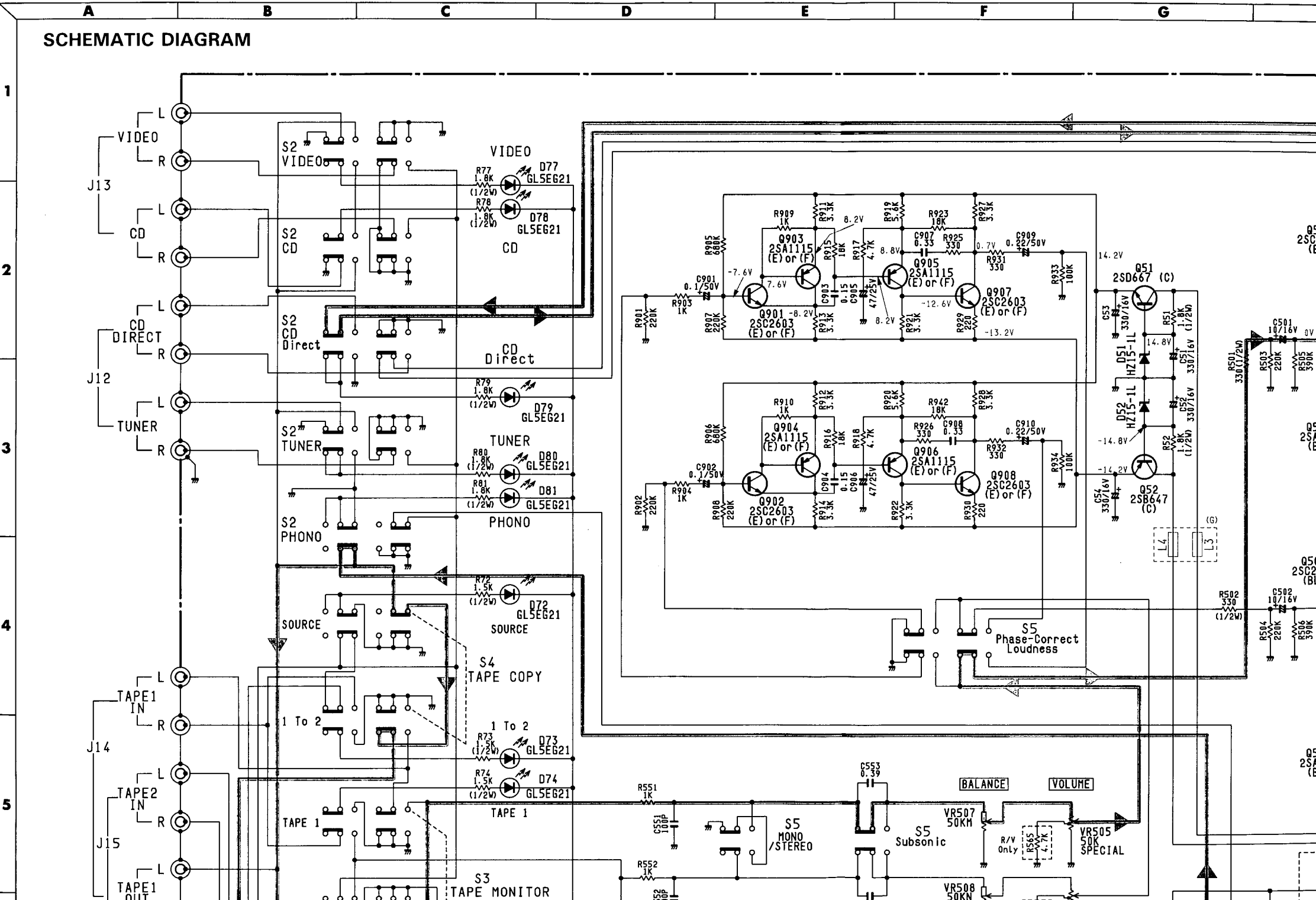
CONTROLS

RES, V CBN : Variable Carbon Resistor

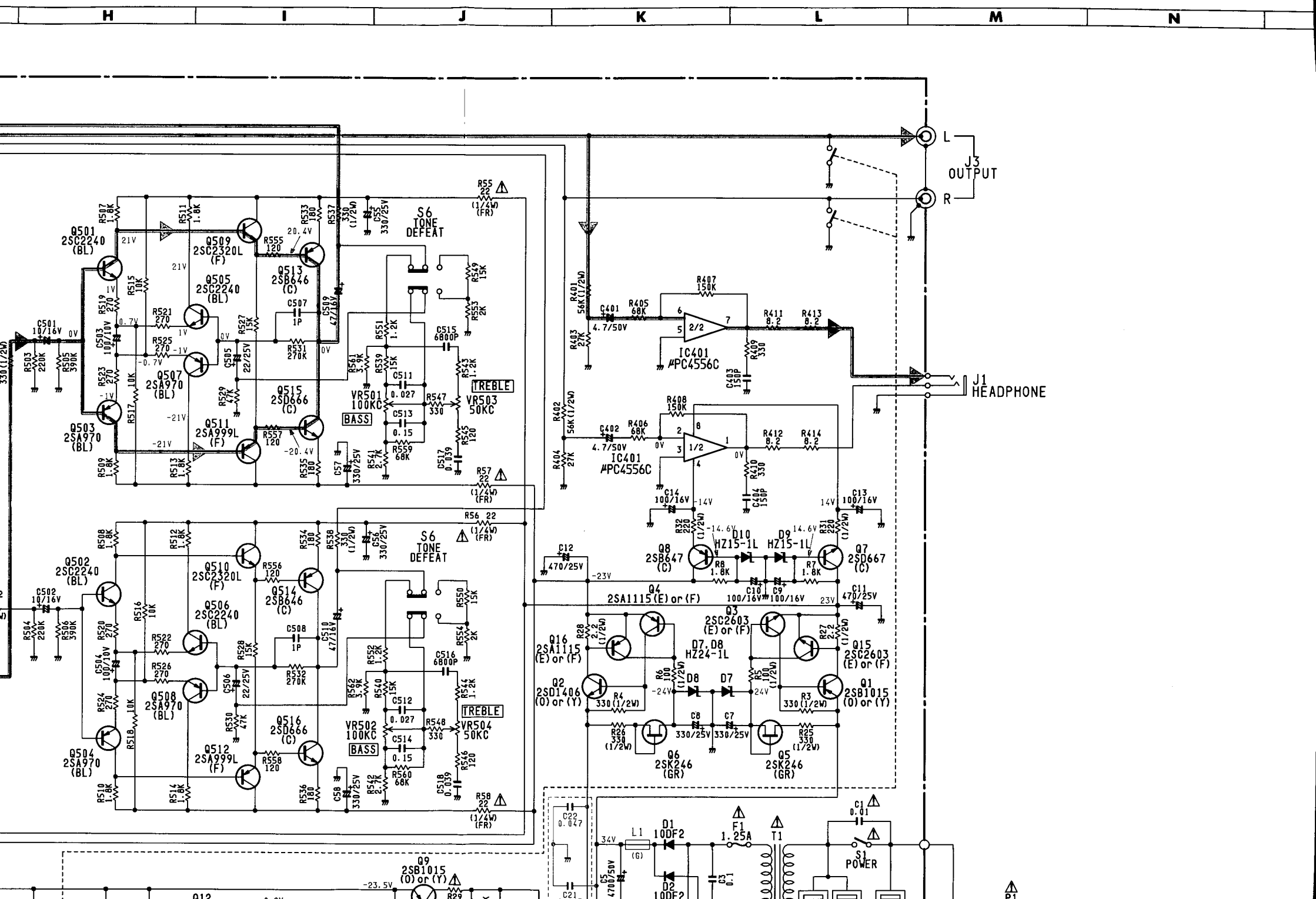
NOTE

⚠ SAFETY RELATED COMPONENT. USE ONLY EXACT REPLACEMENT PART AS SPECIFIED.

SCHEMATIC DIAGRAM



Citation21


H
I
J
K
L
M
N
L
J3
OUTPUT
R
J1
HEADPHONE
S6
TONE
DEFEAT
TREBLE
BASS
VR501
100KC
VR502
100KC
VR503
50KC
VR504
50KC
IC401
μPC4556C
Q501
2SC2240
(BL)
Q502
2SC2240
(BL)
Q503
2SA970
(BL)
Q504
2SA970
(BL)
Q505
2SC2240
(BL)
Q506
2SC2240
(BL)
Q507
2SA970
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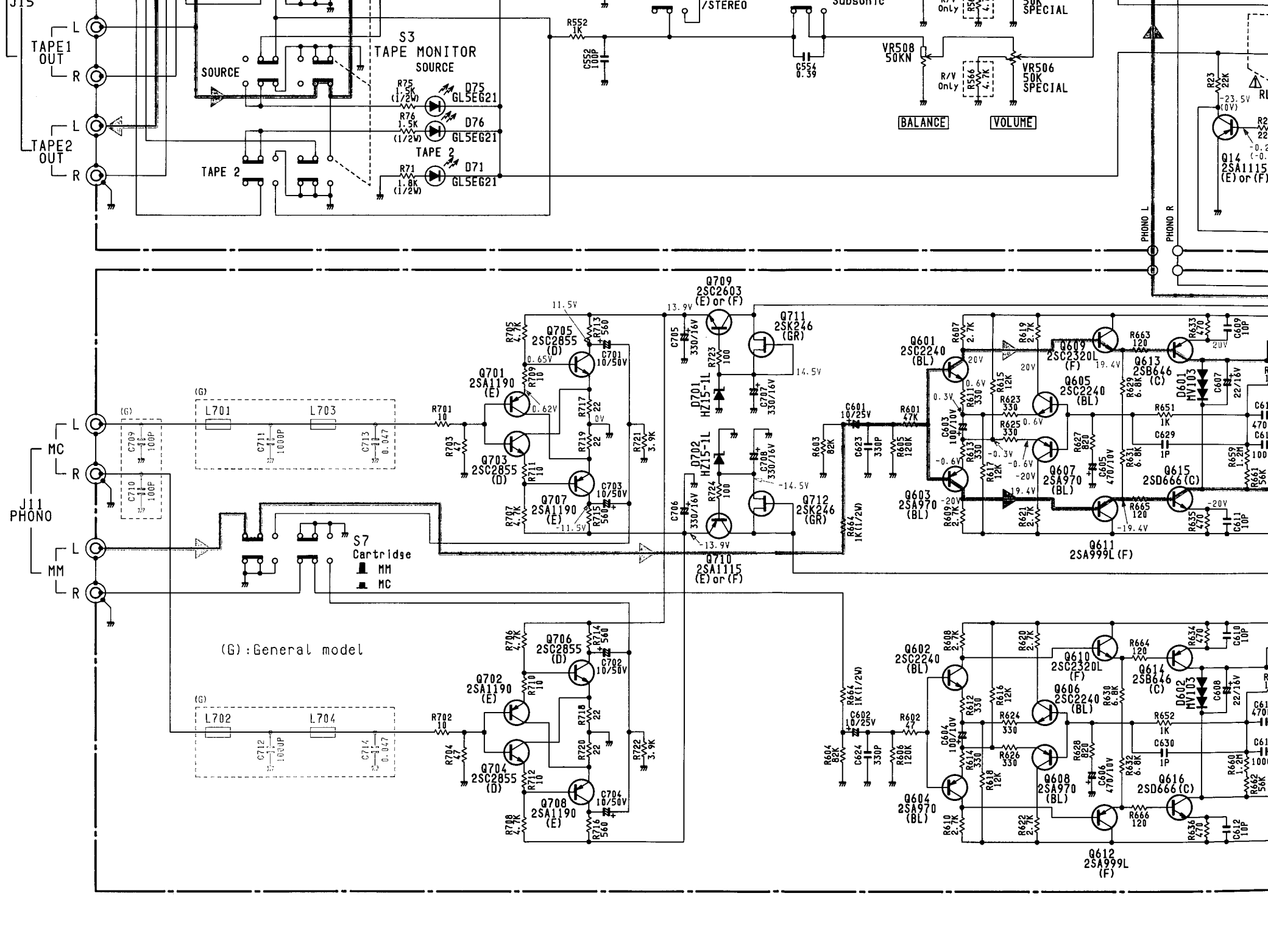
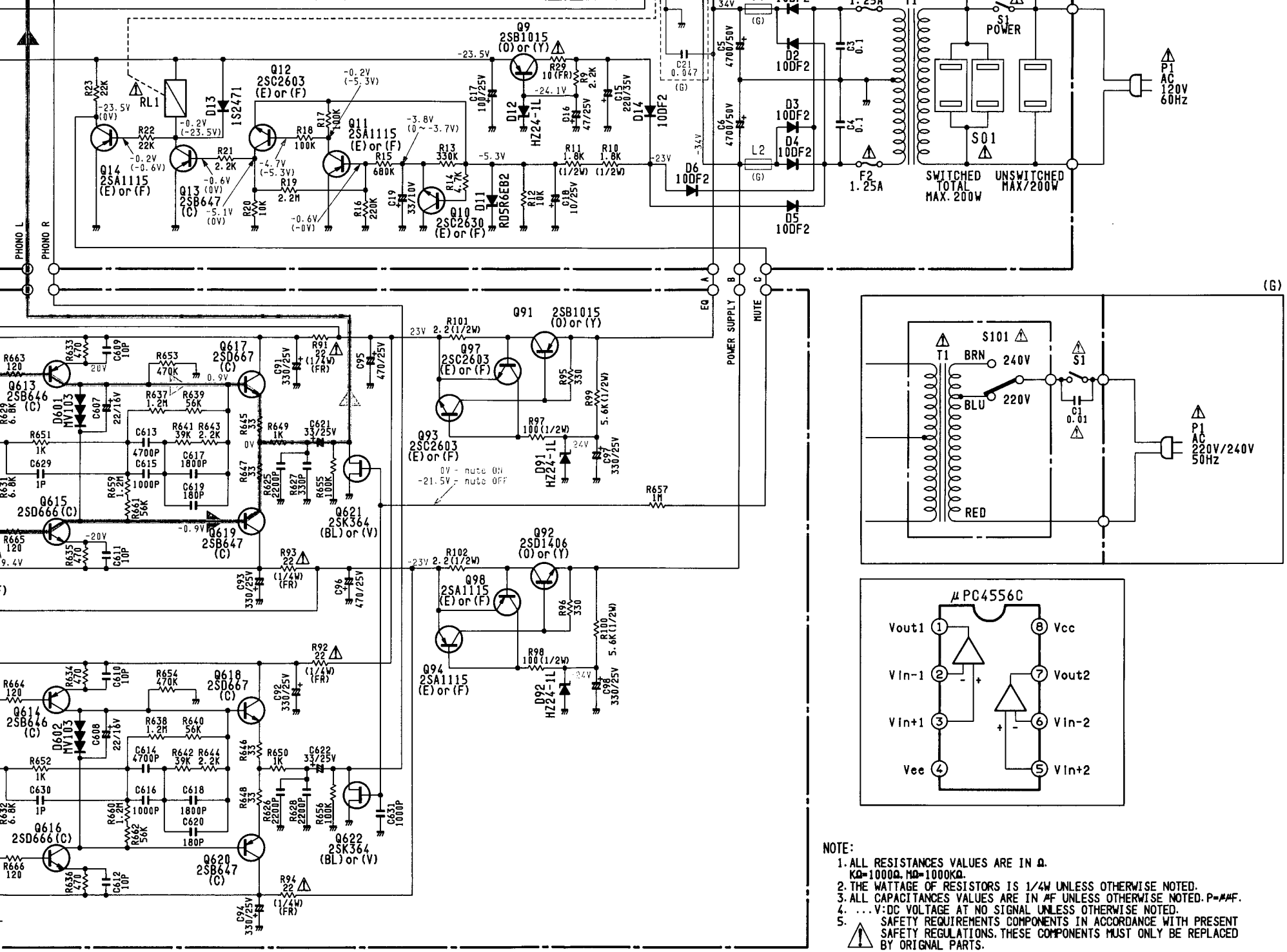
Q508
2SA970
(BL)
Q509
2SC2320L
(F)
Q510
2SC2320L
(F)
Q511
2SA999L
(F)
Q512
2SA999L
(F)
Q513
2SB646
(C)
Q514
2SB646
(C)
Q515
2SD666
(C)
Q516
2SD666
(C)
Q1
2SB1015
(O) or (Y)
Q2
2SD1406
(O) or (Y)
Q3
2SC2603
(E) or (F)
Q4
2SA1115 (E) or (F)
Q5
2SK246
(GR)
Q6
2SK246
(GR)
Q7
2SD667
(C)
Q8
2SB647
(C)
Q9
2SB1015
(O) or (Y)
Q15
2SC2603
(E) or (F)
Q16
2SA1115
(E) or (F)
D1
10DF2
D2
10DF2
D7, D8
HZ24-1L
D9
HZ15-1L
D10
HZ15-1L
F1
1.25A
T1
S1
POWER
L1

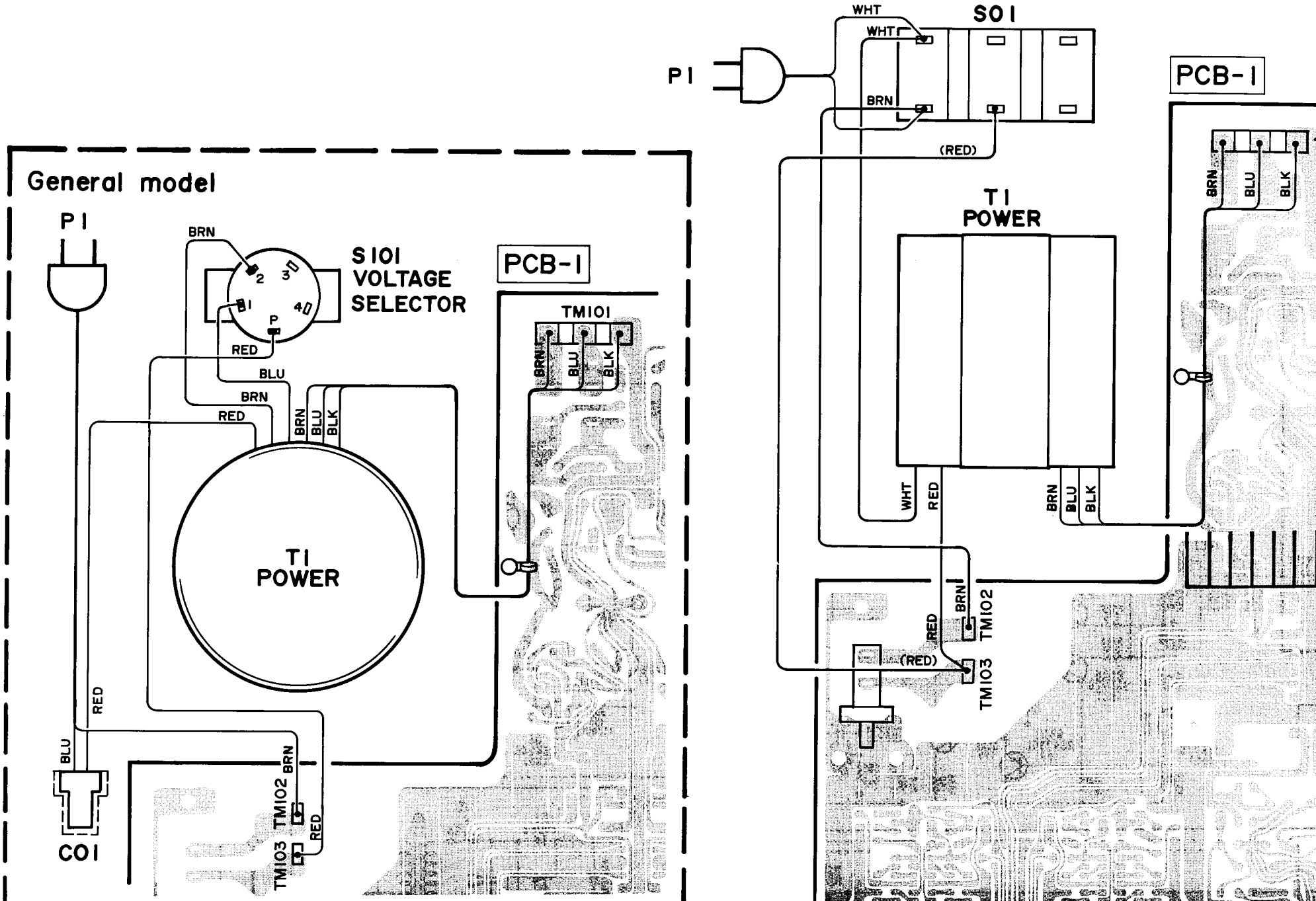

J15
TAPE1 OUT
L
R
TAPE2 OUT
L
R
SOURCE
S3
TAPE MONITOR
SOURCE
R75 1.5K (1/2W) D75 GL5EG21
R76 1.5K (1/2W) D76 GL5EG21
TAPE 2
TAPE 2
R71 1.8K (1/2W) D71 GL5EG21
R552 1K
C552 100P
/STEREO
C554 0.39
VR508 50KN
VR506 50K SPECIAL
R/V Only
R566 4.7K
BALANCE
VOLUME
R23 22K
-23.5V (0V)
Q14 2SA1115 (E) or (F)
PHONO L
PHONO R
J11 PHONO
L
MC
R
L
MM
R
S7
Cartridge
MM
MC
(G) : General model
(G)
L701
L703
L702
L704
C709 100P
C710 100P
C711 1000P
C712 1000P
C713 0.047
C714 0.047
R701 10
R702 10
R703 47
R704 47
Q701 2SA1190 (E)
Q702 2SA1190 (E)
Q703 2SC2855 (D)
Q704 2SC2855 (D)
Q705 2SC2855 (D)
Q706 2SC2855 (D)
Q707 2SA1190 (E)
Q708 2SA1190 (E)
R705 4.7K
R706 4.7K
R707 4.7K
R708 4.7K
R709 10
R710 10
R711 10
R712 10
R713 560
R714 560
R715 560
R716 560
R717 22
R718 22
R719 22
R720 22
R721 3.9K
R722 3.9K
C701 10/50V
C702 10/50V
C703 10/50V
C704 10/50V
11.5V
0.65V
0.62V
0V
-11.5V
Q709 2SC2603 (E) or (F)
Q710 2SA1115 (E) or (F)
Q711 2SK246 (GR)
Q712 2SK246 (GR)
13.9V
-13.9V
14.5V
-14.5V
D701 HZ15-1L
D702 HZ15-1L
C705 330/16V
C706 330/16V
C707 330/16V
C708 330/16V
R723 100
R724 100
R664 1K(1/2W)
C601 10/25V
C602 10/25V
R601 47K
R602 47
R603 82K
R604 82K
C623 330P
C624 330P
R605 120K
R606 120K
Q601 2SC2240 (BL)
Q602 2SC2240 (BL)
Q603 2SA970 (BL)
Q604 2SA970 (BL)
Q605 2SC2240 (BL)
Q606 2SC2240 (BL)
Q607 2SA970 (BL)
Q608 2SA970 (BL)
Q609 2SC2320L (F)
Q610 2SC2320L (F)
Q611 2SA999L (F)
Q612 2SA999L (F)
Q613 2SB646 (C)
Q614 2SB646 (C)
Q615 2SD666 (C)
Q616 2SD666 (C)
D601 MV103
D602 MV103
R607 2.7K
R608 2.7K
R609 2.7K
R610 2.7K
R619 2.7K
R620 2.7K
R621 2.7K
R622 2.7K
R611 330
R612 330
R613 330
R614 330
R615 12K
R616 12K
R617 12K
R618 12K
R623 330
R624 330
R625 330
R626 330
R627 820
R628 820
R629 6.8K
R630 6.8K
R631 6.8K
R632 6.8K
R633 470
R634 470
R635 470
R636 470
R663 120
R664 120
R665 120
R666 120
R651 1K
R652 1K
C629 1P
C630 1P
C601 470/10V
C602 470/10V
C603 100/10V
C604 100/10V
C605 470/10V
C606 470/10V
C607 22/16V
C608 22/16V
C609 10P
C610 10P
C611 10P
C612 10P
R659 47K
R660 47K
R661 56K
R662 56K
20V
19.4V
0.6V
0.3V
-0.6V
-0.3V
-20V
-19.4V

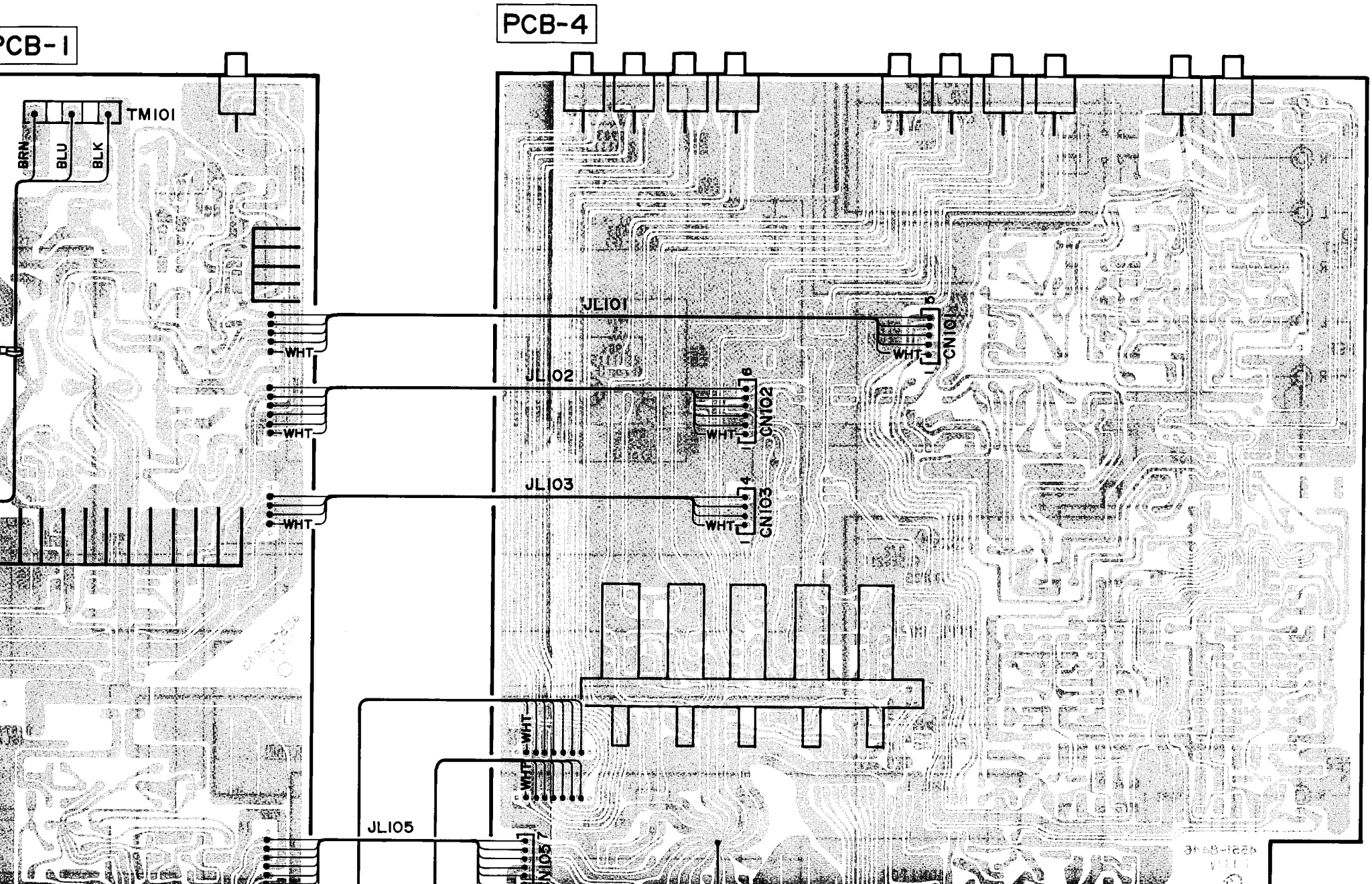


NOTE:

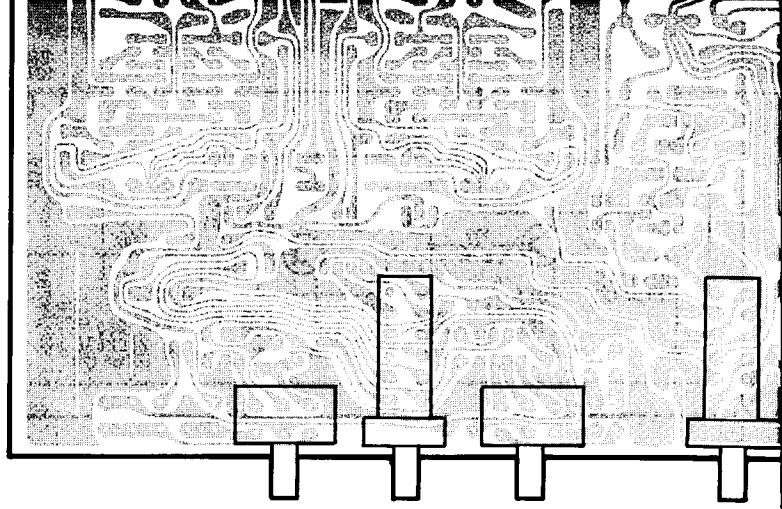
1. ALL RESISTANCES VALUES ARE IN Ω.
   KΩ=1000Ω, MΩ=1000KΩ.
2. THE WATTAGE OF RESISTORS IS 1/4W UNLESS OTHERWISE NOTED.
3. ALL CAPACITANCES VALUES ARE IN μF UNLESS OTHERWISE NOTED. P=μμF.
4. ...V:DC VOLTAGE AT NO SIGNAL UNLESS OTHERWISE NOTED.
5. ⚠ SAFETY REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS. THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGNAL PARTS.

WIRING DIAGRAM

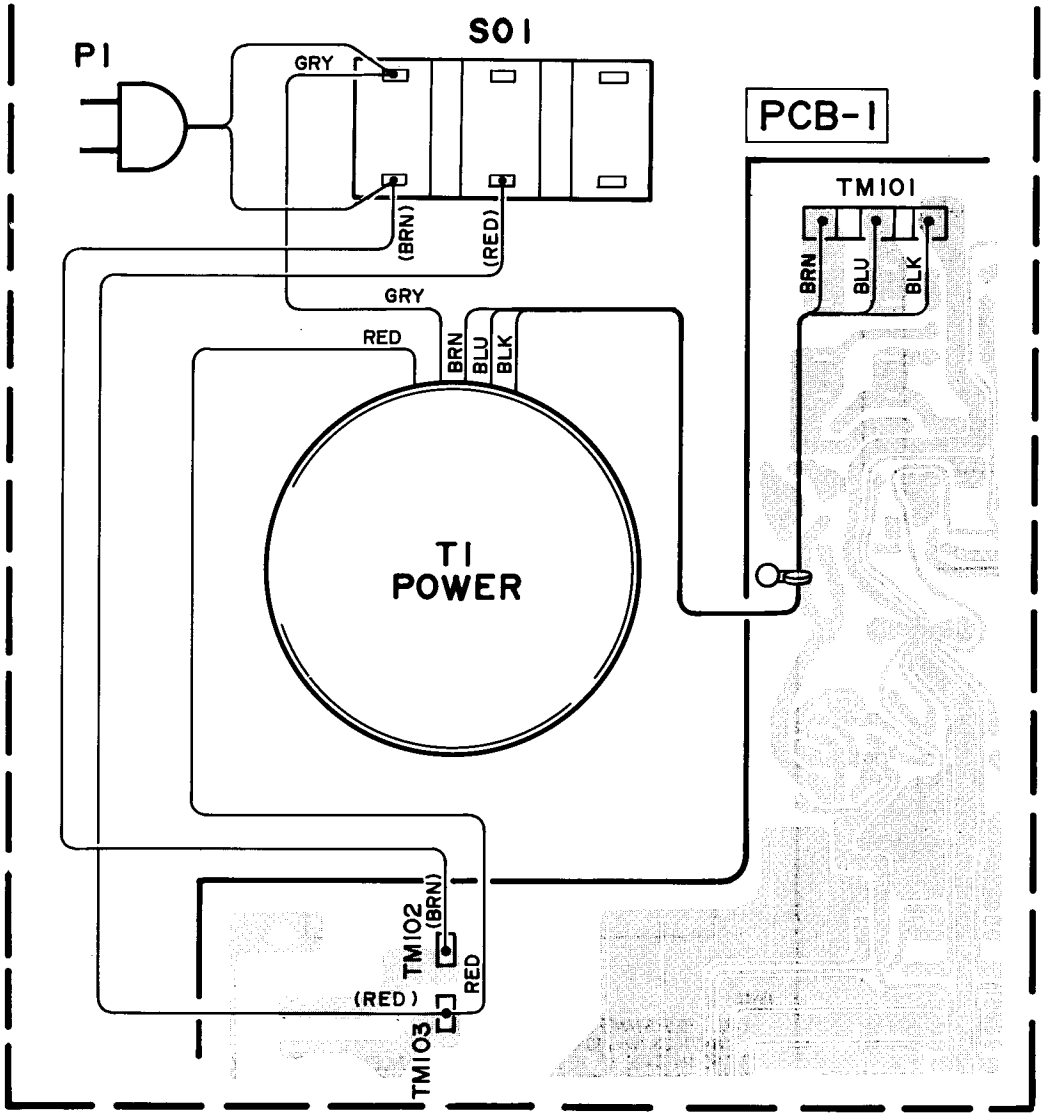


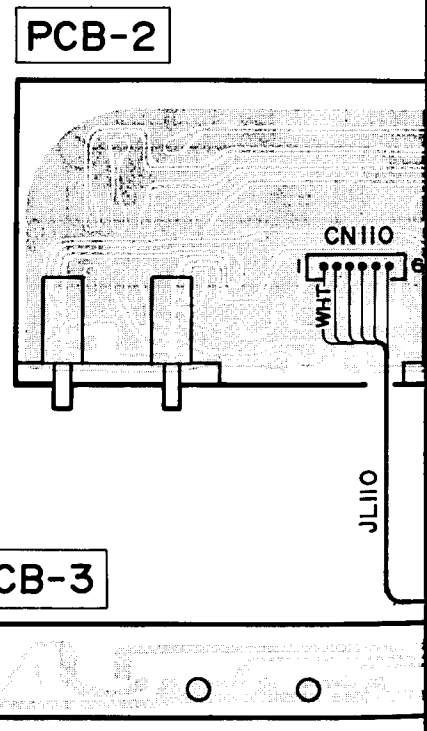

PCB-1
PCB-4
TM101
BRN
BLU
BLK
JL101
JL102
JL103
JL105
WHT
CN101
CN102
CN103
CN105

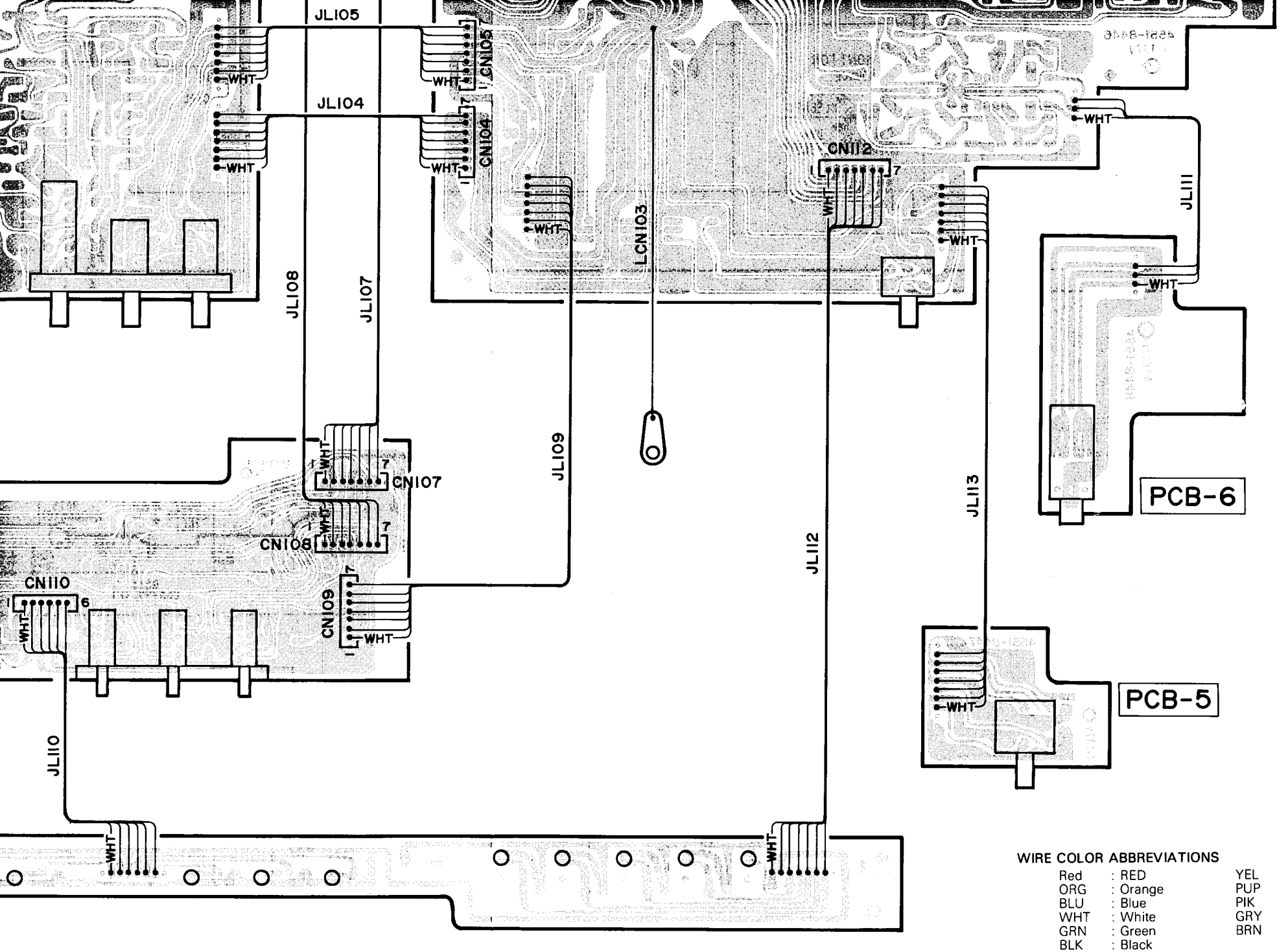
C01
TM103



Japan model


P1
S01
GRY
(BRN)
(RED)
GRY
RED
BRN
BLU
BLK
T1
POWER
PCB-1
TM101
BRN
BLU
BLK
TM102
(BRN)
RED
(RED)
TM103


PCB-2
CN110
WHT
JL110
PCB-3



WIRE COLOR ABBREVIATIONS

Red	: RED	YEL	: Yellow
ORG	: Orange	PUP	: Purple
BLU	: Blue	PIK	: Pink
WHT	: White	GRY	: Gray
GRN	: Green	BRN	: Brown
BLK	: Black		